INTELLIGENCE FUSION PARADIGM: UNDERSTANDING COMPLEX OPERATIONAL ENVIRONMENTS IMPLEMENTING THE INSTITUTIONAL ANALYSIS AND DEVELOPMENT FRAMEWORK

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by

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How might military practitioners incorporate social science concepts within the intelligence analytical framework to better define and understand the human dimension of an area of operation? Current military intelligence doctrine vaguely prescribes the analysis of roles and interactions humans play in an operational environment. Whether soldiers are employing military force, conducting key leader engagements, or providing humanitarian assistance, the analytical process by which intelligence professionals develop assessments should be applicable across the full range of military operations. This paper uses the Institutional Analysis and Development framework to integrate social science concepts, to facilitate understanding the human domain, regardless of the type of operation and military intelligence analytical procedures. This thesis argues that an interdisciplinary approach to evaluating the operational environment by use of an analytical framework is critical to the intelligence analysts' work, and necessitates the granularity that senior level leaders need, to formulate sound foreign policy. A historical Chiricahua Apache case study exemplifies the relevance and utilization of the framework.

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ABSTRACT

INTELLIGENCE FUSION PARADIGM: UNDERSTANDING COMPLEX OPERATIONAL ENVIRONMENTS IMPLEMENTING THE INSTITUTIONAL ANALYSIS AND DEVELOPMENT FRAMEWORK, by Major Christy L. Whitfield, 103 pages.

How might military practitioners incorporate social science concepts within the intelligence analytical framework to better define and understand the human dimension of an area of operation? Current military intelligence doctrine vaguely prescribes the analysis of roles and interactions humans play in an operational environment. Whether soldiers are employing military force, conducting key leader engagements, or providing humanitarian assistance, the analytical process by which intelligence professionals develop assessments should be applicable across the full range of military operations. This paper uses the Institutional Analysis and Development framework to integrate social science concepts, to facilitate understanding the human domain, regardless of the type of operation and military intelligence analytical procedures. This thesis argues that an interdisciplinary approach to evaluating the operational environment by use of an analytical framework is critical to the intelligence analysts' work, and necessitates the granularity that senior level leaders need, to formulate sound foreign policy. A historical Chiricahua Apache case study exemplifies the relevance and utilization of the framework.

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ACRONYMS

ASCOPE	Area, Structures, Capabilities, Organizations, People, and Events
IAD	Institutional Analysis and Development
JIPOE	Joint Intelligence Preparation of the Operational Environment
JP	Joint Publication
PMESII	Political, Military, Economic, Social, Infrastructure, and Information
U.S.	United States

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CHAPTER 1

INTRODUCTION

> Intelligence is daily engaged . . . anchor that COCOM [Combatant Command] commander's understanding of the human domain, which is quite frankly the domain where conflict starts-not in the air, not of the coast, but on the ground with the people in those countries.
>
> — LTG Mary Legere, *AUSA 2012*

Wars have existed since the origins of organized societies and civilizations. Victories within these clashes depended upon accurate information about factors pertaining to the landscape, the strength and location of the enemy, as well as their intentions and capabilities. Despite the violence that ensued, the extent of military operations has been, historically, political in nature. Accounts from World War II signify the important role of soldiers as governors: "They became not merely the administrators of civilian life for the Army's immediate needs but at the same time the executors and at times even, by force of circumstances, the proposers of national and internal political policy" (Coles and Weinburg 1992, X). Chronicles from the politically controversial involvement in Vietnam exhibit the interwoven helixes of armed conflict and the military practitioners' involvement in politics. The exorbitant amount of historical accounts stemming from nearly every major conflict, in which the United States (U.S.) has been involved, provides evidence of military members serving in political roles, albeit in a tactical capacity. With the very nature of war comprising political and military tasks, understanding the operational environment becomes more important.

The Prussian military theorist, Carl von Clausewitz, famously writes "War is not an independent phenomenon, but the continuation of politics by different means.

Consequently, the main lines of every major strategic plan are largely political in nature, and their political character increases the more the plan applies to the entire campaign and to the whole state" (Clausewitz 1976). True understanding of the operational environment is the cornerstone in effective and efficient application of appropriate instruments of national power, to achieve the desired long-term effects and overall goals of the U.S. Defined as: "a composite of conditions, circumstances and influences that affect the employment of capabilities and bear on the decisions of the commander" the operational environment extends beyond physical geographic areas and factors pertaining to air, land, maritime, and space (Joint Chiefs of Staff 2007, I-1).

The role intelligence plays across the spectrum of military operations is vastly important and extends beyond identifying the adversarial capabilities and intent. The human domain presents the greatest variability amongst factors influencing military operations and requires complete understanding. Human beings are unique, both in individual action and in collective behaviors. The fluctuations causing change in behavior, perception, and will incalculably denote the considerations of operational assumptions and impacts. The intelligence preparation of the battlefield and joint intelligence preparation of the operational environment (JIPOE) provides a procedural script on how analysts should evaluate the areas of interest, influence, responsibility or operation. General criticism about intelligence suggest that the military's understanding of the ground truth is rudimentary at best. At present, the steps of evaluating the civil considerations are an afterthought in the analytical process whereby it is a generic hand wave of information about the population. Today, after over 10 years at war, "Afghani" still refers to the people of Afghanistan. Afghanistan's official currency called afghani is

not the same as an Afghan, a citizen of Afghanistan. This is one of the many indications that perhaps the intelligence community has not conveyed the human domain of the operational environment, in a manner that produces practical understanding.

The evaluation of the human aspect provided to a commander is limited and does not provide the information necessary to make succinct decisions about a military action, in the realm of conducting a full range of military operations. The current Joint and Army intelligence doctrines lack a framework needed to analyze sociopolitical variables, in order to piece together the complex nature of human interaction, social organizations, and their roles in the operational environment. More importantly, this analysis fails to calculate how these variables change with military interaction and warfare. Failure to evaluate the human aspect of area of operations in which an adversarial component exists, denies understanding of why an enemy network thrives amongst a population, where the threat group maximizes momentum, and how to exploit vulnerabilities to achieve mission objectives and the commander's intent.

In order to adhere to the intelligence tenets—the fundamental standards and criteria that determine the level of excellence—intelligence must be: "anticipatory, timely, accurate, usable, complete, relevant, objective and available" (Joint Chiefs of Staff 2007, xiv). These principles define intelligence excellence on multiple terms. The analyst should anticipate the intelligence needs of the commander and staff. The intelligence aids support to decision making. The product's format, level of accuracy, and clarity provide comprehension and integrates with the customer's decision-making process. Additionally, the intelligence addresses all user requirements and provides the level of details necessary to consumer's needs. It must also contain accurate assessments

of all applicable material and apply to the end user's mission. Intelligence avoids cognitive biases and reflects a holistic perspective in analysis. Furthermore, intelligence is readily accessible to the commander at the appropriate security classification.

However, is our current intelligence doctrine functional? What comprises the human dimension of an operational environment? What social factors are the most important variables that will drive commanders' decision points? What variables are relevant and which ones are not? In evaluating the operational environment, analysts need to understand what the commander's information requirements are and what factors in the environment will influence their ability to make concise decisions. Research in the social science disciplines proves to offer the interdisciplinary approach that structures analytical procedures in the intelligence realm. This study takes into account a couple of assumptions. First, it assumes that analytical tools are applicable to a population that is not contained within an experimental group that will account for data anomalies. This study also assumes that the factors defined in the human dimension can be observed, measured, or inferred for inclusion into the framework.

This paper evaluates current Joint and Army military doctrine that defines intelligence methodologies and social science theories, pertaining to the human dimension and associated factors. Social parameters, group interactions, motivations, and actors' intentions factor immensely in the operational environment. Traditional analysis focuses predominately on the threat and limited factors about the population; however, Timothy Walton suggests that "what is really crucial about intelligence analysis is how one thinks about the problem, including factors such as identifying the main issues, evaluating the evidence, and laying out the options and risks" (Walton 2011, 186). Most

analysts understand, to a degree, that a multitude of variables affect military operations; however, the majority of the analysis is merely internalized and never documented in reports or integrated into products, where the data maintains its integrity and contextual relevance.

The purpose of this thesis contains three parts. First, this thesis recognizes functionality gaps in current Joint and Army intelligence doctrine aiming to evaluate possible reasons for common military intelligence problems identified. Second, it identifies a social science concept that has application and utility in the military capacity. This framework seeks to formalize current analytical procedures for intelligence preparation of the operational environment. Finally, this thesis demonstrates its functionality by providing a solution for deficiencies previously identified in critiques of military intelligence practices. It specifically evaluates *the analytical approach methodology of the human domain.*

CHAPTER 2

LITERATURE REVIEW

> It is by comparing a variety of information, we are frequently enabled to investigate facts, which were so intricate or hidden that no single clue could have led to the knowledge of them. In this point of view, intelligence becomes interesting which but from its connection and collateral circumstances, would not be important.
>
> — General George Washington, January 20, 1778

Critiques from senior military and civilian intelligence professionals within the last decade necessitated an in depth review of current intelligence processes. There has been much discussion surrounding the intelligence community's successes and failures for nearly a decade, and the outcome has led to organizational restructuring as well as increases in technologies in order to incentivize information sharing and collaboration. However, what appears to be lacking is the initiative to enhance or improve analytical thinking in intelligence.

Going as far back as 500 years B.C., Sun Tzu argues "the necessity of knowing one's enemy" (Sun Tzu), but nearly every major conflict in history signifies the obligation to understand the local populace. The Cold War, a major focal point for the U.S. government intelligence activities for nearly half of the 20th century, focused on cultural perspectives as a pivotal concern regarding economic, political, and military powers and its global dominance. There appeared to be a new era of warfare following 11 September 2001. The seeming shift to non-state actors and asymmetric threat tactics with the "war on terror" began to accumulate different intelligence lessons learned.

Numerous academic writings from military professionals have addressed the need for incorporating cultural intelligence into doctrinal procedures, for conducting

intelligence preparation of the operational environment. Colonel Donald J. Anderson of the U.S. Marine Corps highlighted the lack of cultural training available to service members and inclusion in analysis: “Joint doctrine identifies a requirement for cultural awareness and intelligence; however, there is no direction given for its application, applicability or integration into the joint planning process” (Anderson 2004, 8).

Commander (U.S. Navy) John P. Coles’ critique of “flawed” joint intelligence doctrine is that “intelligence doctrine for process and planning does not adequately direct the joint force commander’s (JFC) intelligence establishment to prepare estimates on the characteristic features of foreign peoples that includes items such as their civilizations, beliefs and social institutions” (Coles 2006, 7). Coles notes that the historical accounts of feedback as well as the lack of doctrinal emphasis for the importance of cultural intelligence while operating in foreign countries as a theme. In addition, Coles concludes cultural knowledge is central to joint warfare and should not be limited to “knowledge of the enemy” (Coles 2006, 10).

The MITRE Corporation, in September 2006, conducted a sociocultural perspectives conference facilitating exploration and eliciting feedback from more than 50 different government organizations. Defining cultural intelligence proved difficult, but there were three tenets identified. Cultural intelligence:

1. Includes, or is informed by, sociocultural data and their analysis.
2. Must be actionable, in the sense that it can be used in decision making.
3. Includes perspectives, theory, and method derived from the social and/or behavioral sciences (Friedland, Shaeff, and Turnley 2006, 10).

The conference attendees also conclude that culture helps to understand human activity and provides awareness of the interaction and their possible significance (Friedland, Shaeff, and Turnley 2006, 11). The overall consensus from the meeting was the intelligence community lacks a procedure that evaluated sociocultural features within an operational environment (Friedland, Shaeff, and Turnley 2006).

The Defense Science Board Task Force states that "understanding human dynamics is an essential aspect of planning success across the full spectrum of military and national security operations" (Office of the Under Secretary of Defense 2009, vii). With the ongoing military operations in Iraq and Afghanistan in 2009, it became apparent to the military that "it must also understand the human environment and dynamics in the entire engagement space–including civilians, neutrals, allies and even our own forces" beyond the initial phases including hostilities (Office of the Under Secretary of Defense 2009, 1). By definition:

> [H]uman dynamics comprises the actions and interactions of personal, interpersonal, and social/contextual factors and their effects on behavioral outcomes. Human dynamics are influenced by factors such as economics, religion, politics, and culture. Culture is defined herein as the particular norms and beliefs held by every human, that impact how individuals, groups and societies perceive, behave and interact.[1] (Office of the Under Secretary of Defense 2009)

To understand the complexity of "human dynamics," an analyst would require an interdisciplinary expertise within an array of disciplines, spanning the spectrum of social sciences. Yet, understanding human dynamics is relevant at every national security echelon.

One of the most substantial statements positing a need for granularity stems from a requirement for grassroots perspective. Lieutenant General Flynn's standpoint on

intelligence operations in Afghanistan during his tenure as the Senior Intelligence Officer and Intelligence Director of U.S. Forces–Afghanistan and International Security Assistance Forces, was annotated eloquently in "Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan." Flynn provides significant points regarding the Army's current analytical practices with the key observations including, "send more analysts into the field and gather more information about the Afghan people, rather than focusing almost exclusively on insurgent groups" (Flynn, Pottinger, and Batchelor 2010). He denotes critical issues facing the intelligence community and provides a prescriptive process on how to alleviate problems within the intelligence community, specifically in Afghanistan. "One of the peculiarities of guerrilla warfare is that tactical-level information is laden with strategic significance far more than in conventional conflicts" (Flynn, Pottinger, and Batchelor 2010).

After nearly a decade of continuous fighting across multiple fronts—Afghanistan, Iraq, the Philippines, and a myriad of other, lesser known operations—it is imperative to reflect upon observations and insights highlighted throughout the course of the U.S.' intelligence activities and support to global military intervention. Walton notes, "Decision makers often complain that intelligence analysts bring them only bad news and problems, and rarely solutions" (Walton 2011, 574-575).

Walton identifies four interrelated decision-making aspects that tend to be problematic. They are: the uncertainty of the current situation, surprises, deception, and the inevitable future (Walton 2011, 209-211). Uncertainty can exist in the form of a thinking enemy or massive amounts of data, without the knowledge of what is important to any given situation and what is futile. Accuracy alone is not enough as analysts,

planners, and commanders seek clear and relevant information to inform assessments, plans, and decisions. A primary reason for situational uncertainty is its interactive nature (Walton 2011). The simple fact remains that the environment in which military practitioners operate is constantly changing. Perhaps one of the greatest reasons for dismay regarding intelligence production is the different standards and levels of detail based on mission type.

"Color-coding" is another intelligence practice under the criticism microscope. Ben Connable (2012) describes a false paradigm undermining analytical fusion where colors ascribe affiliations. In this assumption, the color "red" is hostile, "blue" is friendly, "green" is host nation, and "white" is neutral (Connable 2012, 14). This type of categorical analysis does not allow for multiplicity in roles played in other "colors". Analysts have a difficult time analyzing and identifying relationships that are not static, leading to a lack in holistic perspective: "Commanders and analysts should treat all actors (people and groups) equally—or at least *consider* them equally before prioritizing them for influence—while also focusing on behavior" (Connable 2012, 17). Connable suggests "Behavioral Intelligence Analysis" as the new approach because it posits a "notion that individuals and groups can simultaneously process multiple identities." But with all of these critical reviews, what is doctrine providing the analyst?

The Army's Intelligence Manual for analytical processing delineates a difference between intelligence preparations for types of missions. Offensive or defensive missions and stability differ as "the focus—the degree of detail required and the demand for extensive civil consideration data—such as the cultural, religious, ethnographic, political, social, economic, legal, criminal, and demographic data—needed to support the decision-

making process" (Department of the Army 2009a, 7-2). If operational intelligence is "required for planning and conducting campaigns and major operations to accomplish strategic objectives within theaters or operational areas" (Joint Chiefs of Staff 2007, GL-15), as written in Joint Publication (JP) 2-0, then there is a requirement to provide analytical tools for intelligence professionals that are applicable no matter what the situation, and assist in determining an accurate portrayal of the operational environment. Doctrine further emphasizes the need "for analyzing relevant political, military, economic, social, infrastructure and information variables to help describe the impact of the operational environment on mission accomplishment" (Joint Chiefs of Staff 2009a, iii).

Despite the level of war, the JIPOE process insists it remains the same across the range of military operations. However, certain planning considerations may vary between strategic, operational, and tactical levels, although in specific circumstances tactical operations can have strategic importance and may constitute a critical part of joint operations.[2] Although most of the intelligence publications to date suggest that socioeconomic factors and considerations are predominately evaluated during stability operations and irregular warfare, historical accounts of military involvement during the U.S.' participation in armed forces operations abroad, illuminate the role of the military soldier, as one dealing in polity and not combat. This being the case, the criticality of analysis is the human dimension of the operational environment, where the adversarial component is one of many entities interacting amongst the populace.

The Department of Defense defines the intelligence process as a procedure for converting information into intelligence and making it available to users It consists of the

six interrelated intelligence operations: planning and direction, collection, processing and exploitation, analysis and production, dissemination and integration, and evaluation and feedback (Joint Chiefs of Staff 2007, I-6-7). JP 2-0, *Joint Intelligence* is the doctrinal basis and "keystone document of the joint intelligence series" and provides the fundamental principles of joint operations and unified action.

Joint intelligence doctrine prescribes analysts to evaluate the impact of political, military, economic, social, infrastructure, and information (PMESII) systems networks on military operations by utilizing the systems perspective approach. Systems network analysis facilitates the identification of significant information about a group of entities that might otherwise go unnoticed. The "systems perspective approach" looks at layers of interconnected groups or chains that interact or are interdependent within a system. A system is an interconnected entity comprising nodes and links. Elements within the systems such as people, places or things (e.g. facilities, people, etc.) represent nodes. The functional relationship between nodes such as identity and sense of belonging to a group, or weapons and the facilitation source are links (Joint Chiefs of Staff 2009a, II-48). Behavioral relationships between nodes are links, such as the authority relationship connecting a leader to a group member, the relationship of media to propaganda, and the ideology that connects a complacent civilian to insurgents (Joint Chiefs of Staff 2009a, II-48). The links are derived from information and intelligence collected, exploited, analyzed, and assessed (Joint Chiefs of Staff 2009a, II-49).

Described as a holistic and dynamic process, that both supports and is supported by the intelligence process, JIPOE allows analysts to assess adversarial instruments of national power, continue refining the joint intelligence estimate, and make hypotheses

about the most likely and dangerous courses of action available to an enemy (Joint Chiefs of Staff 2009a, xiii). JIPOE consists of four primary steps and is defined as the analytical process used by joint intelligence organizations as "a continuous process" that includes "defining the operational environment;" "describing the impact of the operational environment;" "evaluating the adversary;" and "determining adversary courses of action" (Joint Chiefs of Staff 2009a, I-1).

Although this doctrine prescribes generic application of how to evaluate the adversarial elements within the operational environment, it does not identify, define or clearly outline "relevant" elements that determine the human dimension. The primary concern in current doctrinal publications is that the operational environment analysis is adversary focused; it does not consider the threat as merely an actor or assemblage of actors operating within an environment where military intervention is likely to occur or has already occurred. Moreover, joint intelligence doctrine suggests, "JIPOE support during stability operations and irregular warfare (IW) requires a more detailed understanding of the relevant area's socio-cultural factors than is normally the case during traditional war"[3] (Joint Chiefs of Staff 2009a).

The U.S. Army Field Manual 2-0 and Army Doctrine Reference Publication 2-0 defines analysis as "the procedure for determining facts, patterns, and relationships from information about the threat and environment" (Department of the Army 2004, Glossary-19). The manual further outlines the changes to the operational environment that require focused attention when training analysts. It identifies eleven "critical variables" that assist in the comprehension of the threat and the operational environment which include: "nature and stability of the state, technology, regional and global relationships, external

organizations, economics, national will, demographics, time, physical environment, military capabilities, and information" (Department of the Army 2004). The Army Doctrine Reference Publication 2-0 states cultures:

> Influence people's range of action and ideas including *what* to do and not do, *how* to do or not do it, and with *whom* to do it or not do it. Include the circumstances for shifting and changing rules. Influence how people make judgments about *what* is right and wrong and *how* to assess what is important and unimportant. Affect how people categorize and deal with issues that do not fit into existing categories. Provide the framework for rational thoughts and decisions. However, what one culture considers rational may not be rational to another culture. (Department of the Army 2012, 2-5)

The Army's Field Manual Interim 2-01.301 provides tactics, techniques, and procedures as well as Intelligence Preparation for the Battlefield application for military intelligence analysts. In addition to an overview of general intelligence warfighting function information, this manual provides analysts with graphic depictions, model methods, and checklists. These checklists provide helpful considerations for which analysts must account during the intelligence cycle. Some of the checklists include infrastructure and civil considerations.

The U.S. Army Counterinsurgency Manual prescribes the use of "social network analysis" as a tool for evaluating an insurgency's dynamics by identifying and portraying the network structure (Department of the Army 2006, B-10) and to support a commander's requirement to describe, estimate, and predict the dynamic structure of an insurgent organization. This tool provides a graph representation and formalizes the "informality of insurgent networks" by illuminating "unobserved association by focusing on the preexisting relationships and ties that bind together such groups" (Department of the Army 2006, B-17). Additionally, social network analysis provide analysts a tool to "assess the network's design, how its member may or may not act autonomously, where

the leadership resides or how it is distributed among members, and how hierarchical dynamics may mix or not mix with network dynamics" (Department of the Army 2006, B-10).

The intelligence community has addressed the criticisms, lessons learned, and intelligence shortcomings regarding the human domain through reorganization, policy reformation, training programs, and technology acquisition. Lieutenant General Barno states:

> There's a broader recognition now that understanding the civilian population you're operating in and the economic dimensions and basic social structure of the country you're going to be fighting in is in many cases at least as important as understanding who the enemy is and understanding how he fights. (Serbu 2012)

Furthermore, Barno's comments specified that Flynn's stance on intelligence spurred changes.

Many agencies as well as the military have opted for reorganization to carve the improvements towards analytical efficacy. The Office of National Intelligence was established in 2005 to "improve information sharing, promote a strategic, unified direction, and ensure integration across the nation's IC [Intelligence Community]" (Office of the Director of National Security 2011). There has been authorized military growth for Military Intelligence analysts below Battalion level, and the development of Company intelligence support teams.[4]

Policies surrounding intelligence activities have placed great emphasis on information sharing, and increased collaboration. This effort attempts to break the stovepipe stigma plaguing the intelligence community at large with a goal "to find the best balance between adequate sharing and effective information security" (Best 2011, 1). These policies consider information sharing between interagency and intergovernmental

organizations as well as allied nations. “The Intelligence Reform and Terrorism Prevention Act of 2004 (P.L. 108-458) established the position of the DNI [Director of National Intelligence] with statutory authorities to foster information sharing” (Best 2011, 5).

Additionally, concerns from units returning from combat indicated a need for culture and language familiarization (U.S. House of Representatives 2010). The creation of new and the expansion of current training programs, sought to generate an understanding of foreign regions through cultural awareness. Additionally, the military has looked at the likelihood of regionally aligning military forces and their focus for future operations. While discussing the change in the strategic environment, Army Chief of Staff General Odierno says:

> By aligning unit headquarters and rotational units to combatant commands, and tailoring our combatant training centers and exercises to plan for their greatest contingencies, units will gain invaluable expertise and cultural awareness, and be prepared to meet the regional requirements more rapidly and effectively than ever before. (Lopez 2012)

Regional alignment, according to General David Rodriguez, Commander of U.S. Army Forces Command focuses “on military-to-military partnerships in a specific world region, and includes receiving cultural and language training and familiarity with that area’s people and Soldiers and enhanced joint/combined military interoperability” (Vergun 2012). Initiatives such as these prove the importance of understanding foreign and cultural diversity.

Research and development as well as industry based knowledge management systems technologies are bridging the gap between the intelligence agencies and Department of Defense entities involved in the intelligence. However, it does not address

the concerns for actionable intelligence and cumbersome analytical processes that fail "vital intelligence needs" (AFCEA Intelligence Committee 2006, 3). The U.S. Army has continued to develop its intelligence enterprise infrastructure in a program of record known as Distributed Common Ground System-Army. The evolution of this initiative was designed to incorporate the disparate multi-intelligence processing and sensor data, as well as facilitate integration and collaboration across the joint and interagency intelligence enterprise.[5]

What existing intelligence doctrine and reform are missing is a conceptual framework for conducting analysis that provides the minutiae desired by policy and decision makers.

> Because all human activity occurs in socio-cultural environments, it is fundamentally a multi-dimensional phenomenon. In order to address these multiple dimensions, analysts will need to leverage approaches from different disciplines in the social sciences (e.g., political science, anthropology sociology), behavioral sciences (e.g., psychology), life sciences (e.g., physiology, ecology-environmental science), and physical sciences (e.g., physics, chemistry), as well as engineering. (Friedland, Shaeff, and Turnley 2006, 15)

The absence of concepts addressing analyzing human processes, interactions, motivations, perceptions, and intentions is problematic because concept formulation is the foundation of intelligence analysts' work regarding the human factors inherent to an operational environment.

As a result, there are intrinsic flaws in the systems and social network analysis approaches prescribed in the Joint and Army publications for intelligence when evaluating the operational environment. Conventional analytical approaches in current practice seek to explore adversary (threat) networks devoid of considering operational environment variables and their interplay. The Joint and Army intelligence doctrines

overlook the broader applicability of analysis of the operational environment as an open system susceptible to emergence and change.

The review of literature reveals four primary defects in current intelligence doctrine. First, culture alone is not the only aspect of intelligence analysis when considering the human dimension. Culture is an amalgamated fragmentation of human characteristics that bind individuals within identities, roles, groups, and societies (DiMaggio 1997, 264). Culture is one of many factors considered within an operational environment. Although, link-nodal analysis facilitates identifying key actors within a social network and their possible position within a system, it does not illuminate the most important aspect of "relevant" factors within the operational environment—*interactions*. Without comprehending interactions, analysts cannot discern hidden roles, identities, group belongings, rules-in-use, or an actor's intentions.

Second, the systems perspective approach does not generate the analytical rigor necessary to understand the interactions between systems and the complex nature of adaptation and emergence. The systems perspective approach may provide a generic visualization tool for a commander to understand; however, some of the more prominent connections between links and nodes are within the integration of systems. Therefore, a system, as used in the systems perspective approach, is not a practical unit of analysis. Analysts must be scalable. Although it provides a macro perspective evaluation of known entities in the operational environment, it is not easily reducible to a microanalytical level. A system comprises subparts, elements, and interactions that are fundamental to an assessment. Segregating the components during analysis hinders an analyst's ability to depict, analyze, and disseminate the unit's importance: "What is a whole system at one

level is a part of a system at another level" (Ostrom 2005, KL 468). Units have subunits and those units are themselves part of another. Originally introduced by Koestler (1973) as holons, the focal point for analysis takes place in "nest subassemblies of part-whole units in complex adaptive systems." The inability to analyze a system as whole or in its parts at all echelons causes loss of data and contextual relevance to the military decision maker. It is imperative that analysis of a system and its components maintain data integrity and the comprehension of its significance conveys easily to military practitioners.

Third, this paper posits the necessity for intelligence analysts to evaluate the operational environment, and especially the human domain, regardless of mission type. The current Army and Joint intelligence doctrines assert a need for a more detailed understanding of factors pertaining to the human aspect during specific types of operations. Joint doctrine annotates a need for increased detail during stability operations and irregular warfare. Army doctrine differentiates the focus level between stability and offensive or defensive operations. Flynn highlights the need for information from lower level echelons because it may contain strategic implications especially within guerilla warfare (Flynn, Pottinger, and Batchelor 2010). If the U.S.' ultimate goal is a better state of affairs (encompassing politics, economic, and cultural elements) for its national security strategy and its military interventions, attention to the human dimension must always be paramount.

Finally, the current intelligence doctrines lack of framework leaves subjectivity in the analytical process. A framework, according to Ostrom, "helps to identify the elements (and the relationships among these elements) that one needs to consider for institutional

analysis. Frameworks organize diagnostic and prescriptive inquiry" (Ostrom 2005, KL 794) providing a collection of factors analysts should apply to the range of settings useful in the framework. Military analysts, seemingly inundated with immense quantities of publications that dictate the result expectations from analysis, do not have a standardized means to conduct intelligence preparation of the operational environment. The analytical process across all services and every echelon of war vary, yet they demand the same thoroughness in the level of intelligence quality.

Without a flexible and agile framework, indifferent to mission type, analysts are unable to standardize analysis tasks, consider all relevant information and intelligence variables, or nominate collection efforts in closing intelligence gaps without these critical pieces of information. Can social science concepts and a framework provide military intelligence analysts with the methodology to facilitate an accurate depiction of human domain, in a manner that best supports a commander's ability to make informed decisions at all echelons, given the operational environment?

The encapsulating research that binds the social science findings in this paper is the Institutional Analysis and Development (IAD) framework (Gibson et al. 2009; Crawford and Ostrom 1995; Ostrom 2005; Ostrom 2011). The IAD framework provides a structural procedure for evaluating components of human factors relevant to the operational environment and critical to the intelligence analysts' work. Originally designed for developmental aid, the applicability of the model facilitates a design based analytical tool customizable to varying situation. Ostrom explains, "the IAD framework can be presented at scales ranging from exceedingly fine-grained to extremely broad-

grained" (Ostrom 2005, KL 462-463). Focusing on interactions, the action situation within the framework provides analytical coverage to the doctrinal gap.

This framework is also evolutionary and requires analysts to "identify, categorize and organize those factors deemed most relevant to the understanding of some phenomena" (McGinnis 2011, 170). It continues to morph with the demands of intelligence requirements and the analysts' specific problem sets. This framework is adaptable and can evolve as intelligence techniques and practices shift. Its impressionable form is inclusionary of all human interactions, groups and organizations, and accounts for material and physical conditions (e.g. fixed structures, terrain, and other characteristics) unique to distinct operational environments. Furthermore, as McGinnis explains, this framework remains "in active use, and as such is subject to innovations and reconsiderations" (McGinnis 2011, 2).

This paper argues that an interdisciplinary approach between scholars and military practitioners can provide the solution to the intelligence analytical deficit regarding the civil or human dimension of the operational environment. The IAD framework provides a skeleton for standardizing analytical procedures, incorporates the use of analytical tools and their outputs, as well as facilitates critical and creative thinking, necessary to provide decision makers and military commanders the required granularity for appropriate interventions.

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[1]During the entire research process of this paper, there was not single definition of culture.

[2]JP 2-01-03, I-17 Paragraph 7. Joint Intelligence Preparation of the Operational Environment Relationship to the Levels of War states that the process remains unchanged while there are varying considerations that take place at each echelon. However, this

publication also states that there is an increased emphasis on sociocultural factors' analysis during stability operations and irregular warfare than in traditional war. (IV-2)

[3]FM 2-01.3, *Intelligence Preparations of the Battlespace/Battlefield* also "The art of applying intelligence preparation of the battlefield/battlespace (IPB) to stability operations or civil support operations is in the proper application of the steps to specific situations. The primary difference between IPB for offensive and defensive operations as compared to stability operations or civil support operations is the focus—the degree of detail required and the demand for extensive civil consideration data—such as the cultural, religious, ethnographic, political, social, economic, legal, criminal, and demographic data—needed to support the decision-making process."

[4]More information regarding Company Intelligence Support Teams (COISTs) is accessible through the Center for Army Lesson Learned.

[5]More information regarding DCGS-A is accessible through the Program of Record (DCGS-A) website annotated in the bibliography. Familiarization of this program originates from training and implementation of the system.

CHAPTER 3

RESEARCH METHODOLOGY

This thesis advances in four parts using a qualitative research methodology to evaluate the relevance of existing military doctrine, and determine the functionality of the IAD framework based on critiques of intelligence practices and lessons learned. First, this paper outlines critiques of the intelligence community, which consists of researching historical accounts of intelligence practices, military professionals' critiques of intelligence, and general assessments of lessons learned. The common trends amongst the criticisms identified found the criteria basis for evaluating social science concepts that explicitly address human terrain analysis issues and incorporate existing tools and methodologies of military intelligence practices.

The second phase consists of evaluating the intelligence preparation of the operational environment from both Army and Joint intelligence doctrines and isolating the special and civil considerations from each. This phase evaluates current procedures and guidance currently utilized in military intelligence practice. The JIPOE includes PMESII and Intelligence Preparation of the Battlefield uses area, structures, capabilities, organizations, people, and events (ASCOPE) for civil considerations.

The third phase provides an overview and assessment of the IAD framework and its utility in providing the procedural framework for standardizing analysis, for defining and describing the operational environment. This phase also includes an introduction to Craig Parson's causal logics as well as William Connolly's emergence considerations. Because analysts' assessments include attributions of causality, it is important to identify and explain various scholarly perspectives that deviate from the dependent and

independent variable linear casual logics. Parsons provides four general categories that typify specific types of causal claims. Connolly, on the other hand, offers the idea of emergent causation: a collision of interacting open systems generating something changed or new. Furthermore, this phase also includes common analytical pitfalls.

The fourth phase focuses on providing a case study application of the modified IAD for intelligence framework to illustrate its functionality. Using the Chiricahua Apache and an isolated event from the Apache Wars, this case study focuses on historical narratives from literature written from the perspective of Chiricahua descendants. This application exemplifies the framework's utility, validates its ability to incorporate current military intelligence procedures, as well as ultimately answering the primary research question. In presenting this reflective analysis, this paper seeks to illuminate how the intelligence professional, and moreover the military practitioner, can use these concepts to not only gain a profounder comprehension of human interactions within the operational environment, which includes accounts of events past and potential predictability of future dealings.

The Army and Joint intelligence doctrine proffer the requirement for enhanced details in understanding of the human dimension when conducting varying operations such as stability and irregular warfare. The limitation of this paper is that it focuses on the special consideration in JP 2-01.3 and civil considerations from Field Manual 2-01.3 because these particular chapters are the focal point for analysis when evaluating the human domain and look specifically at the characteristics that are the underpinnings of human terrain.

CHAPTER 4

ANALYSIS

> It is my land, my home, my father's land, to which I now ask to be allowed to return. I want to spend my last days there, and be buried among those mountains. If this could be I might die in peace, feeling that my people, placed in their native homes, would increase in numbers, rather than diminish as at present, and that our name would not become extinct.
>
> — Geronimo and S. M. Barrett,
> *Geronimo: His Own Story*

> When we speak of improving intelligence analysis, we are usually referring to the quality of writing, types of analytical products, relations between intelligence analysts and intelligence consumers, or organization of the analytic process. Little attention is devoted to improving how analysts think.[1]
>
> — Richards J. Heuer, Jr.

Military practitioners tread across a realm of many scholarly disciplines; anthropology, sociology, psychology, economics, and political science being just a few. Likewise, the human dimension within the operational environment is composed of multiple fluctuating variables. These variables can include individuals, groups, organizations, culture, history, terrain, etc. Considerations for the human dimension in both the JP and Army Field Manual for the process of intelligence preparation of the operational environment script civil and special concerns. The socio-economic, geopolitical landscape presents obstacles and opportunities that Armed Forces service members navigate in the execution of duties and responsibilities bestowed upon them by military and civic leaders. Successful implementation of these tasks requires a full grasp of an area's local dynamics. Connable suggests that "treating complex environments . . . as a system that can be broken into simply labeled component parts leads analysts to

make unhelpful and logically unsound assumptions regarding human identity" (Connable 2012, 1).

The world exists at multiple levels of complexity—seen and unseen, known and unknown—that react and respond in different ways and at varying times. The intricacy of a "world of becoming" (Connolly 2012, KL 516) is comprised of open systems (people, nature, political institutions, etc.) that interact with each other, sometimes creating new and unforeseen results due to their interaction. The added difficulties of warfare challenge intelligence analysts with what appears to be a seemingly endless task and in the words of General David Rodriguez: "It's tough" (Rodriguez 2011).

Fingar notes that "making sense of the data and distilling insights helpful to decision makers are the responsibility of analysts. Stated another way, the role of analysts is to convert data into insight" (Fingar 2011, 3). The cornerstone of intelligence analysis is defining and describing the environment and its effects. The notion of complexity existing amongst adaptive systems is not a new concept, but adapting analytical practices to account for it, is a revolutionary one. William Connolly writes about the concept of open systems and complexity. Interpreting unobservable behaviors in humans is tremendously complicated. Because the composition of human beings is constantly changing in the environment, analysts must be cognizant and considerate of the notion of resonance machines. A "resonance machine," as Connolly defines it, is "the idea that role performance, beliefs, desires, actions, and the larger assemblages in which all are set can resonate back and forth, so that a change in any also enters into the character of the others" (Connolly 2011, 14). Its existence is dependent upon a degree of cooperation from all existing systems working towards a mutually desired outcome. Understanding

complexity, the dynamics of constant change within the world, allows analysts to appreciate “tough” environments and adopt flexible practices.

These contemplations contain true validity and importance, yet lack a neatly packaged, universally interpretative form. The IAD framework, with minor modifications, not only serves as a skeleton for the structure needed to better understand how the multitude of analytical apparatus within the intelligence toolkit integrate, but also formalizes the analytical process and generates a mode of thinking that all analysts should undertake, when evaluating operational environment dynamics.

Institutional Analysis Development Framework Overview

The IAD framework is a comprehensive apparatus for analyzing behavioral presuppositions in diverse situations while facilitating multiple levels of analysis. The functionality of the framework evaluates how rules, physical conditions, and attributes of community affect the structure of action arenas, individuals’ incentives, and the resultant outcomes (Gibson et al. 2009, 24-25; Ostrom 2005). This framework helps analysts identify the main genera of underlying dynamics present in an operational environment. As Gibson, Andersson, Ostrom and Shivakumar discuss, “the IAD framework provides a general compilation of the types of variables that should be used to analyze a relevant problem” (Gibson et al. 2009, 25). More notably, Ostrom states, “the IAD framework is thus a multi-tier conceptual map” (Ostrom 2011).

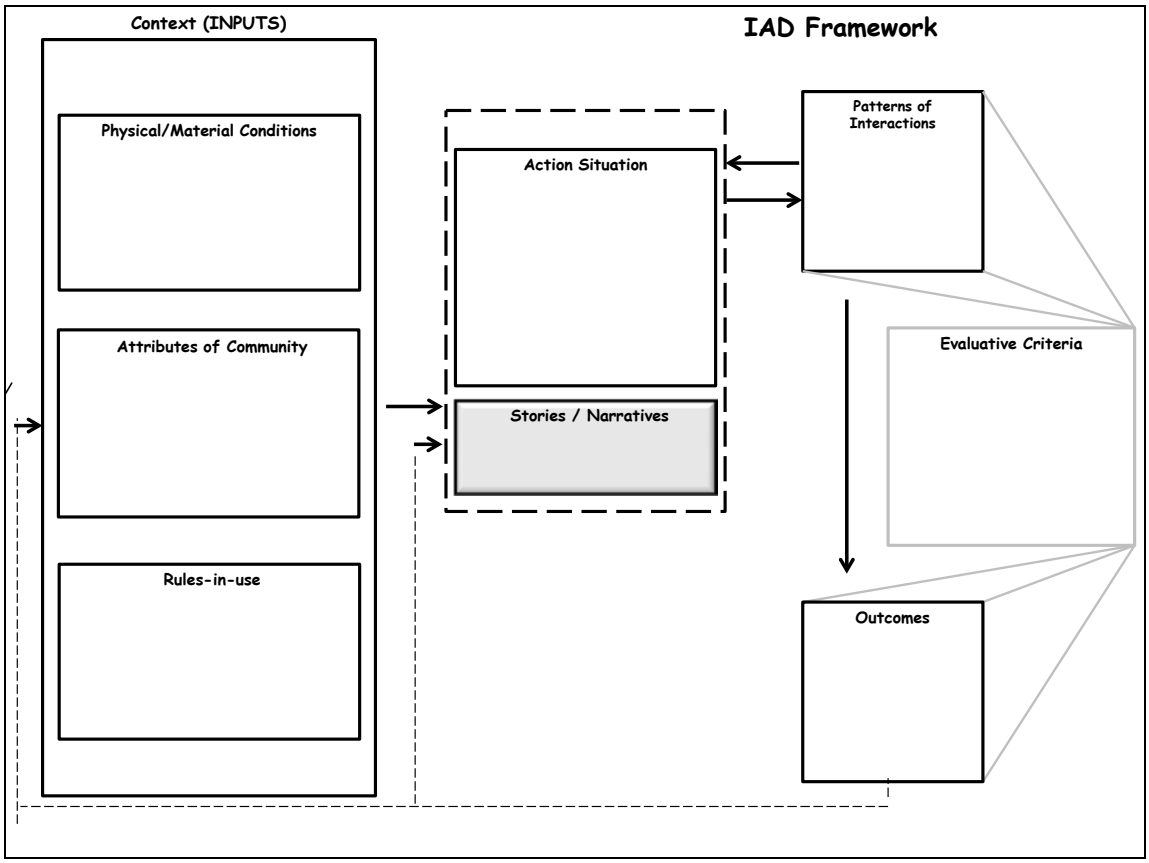

Figure 1. IAD Framework

Source: Adapted from Gibson et al., *The Samaritan's Dilemma: The Political Economy of Development Aid* (New York: Oxford University Press, 2009), 26, Figure 2.2. A framework for institutional analysis. [Originally adapted from Ostrom et al., *Rules, Games and Common-Pool Resources* (University of Michigan Press, 1994), 37, Figure 2-2.]

Modified to accommodate the models used in JIPOE and Intelligence Preparation of the Battlefield, the IAD framework and the analytic processes used by intelligence analysts have a symbiotic relationship.[2] The IAD framework, with minor adjustments, can fully incorporate the aspects of the intelligence preparation of the operational environment process. Without compromising the analytical power of output from tools, the framework maintains structural integrity and facilitates analysis of established

conditions for interactions to occur. The significance of the IAD framework is its adaptive properties contained within the configuration that supports intelligence processes. The components within the arrangement can account for all of the analytical steps and substeps within intelligence preparation of the operational environment. Moreover, the importance of using this framework is the level and quality of analysis that it stipulates. The complexity within an operational environment requires a framework that fundamentally incorporates, as Ostrom explains, "shifting levels of analysis from one situation to a deeper rule-changing situation" (Ostrom 2005, KL 1340). See Appendix A.

The IAD framework is broken down into core components. These include distal context (or inputs), the proximate context comprising the action situation and narratives, as well as the interactions and outcomes evident through the evaluation criteria: "All parts of the IAD's context–working rules, biophysical/material conditions, and community attributes–provide the initial conditions or 'the environment' that structures efforts to achieve outcomes" (Gibson et al. 2009, 35). These components facilitate analysis of critical aspects that determine interaction and expose the underpinnings, that decision makers and military practitioners need, in order to intervene in the world in a more efficient and effective way.

Distal Context (Inputs)

"Distal context" sets the circumstances within which an action situation exists.[3] Organized into three categories, the contextual factors that shape the arena are composed of physical and material conditions, attributes of the community, and rules-in-use (Ostrom 2005; McGinnis 2011, 8**)**. The input categories in the distal context are not all-inclusive and do not contain a specific concrete list of variables. The factors considered

in the distal context can fluctuate, increase or decrease as the situation dictates. Analysts must exercise due diligence in ensuring all pertinent factors are considered in the analysis and framework application.

Physical and Material Conditions

Physical and material conditions within the IAD framework comprise all variables that influence actions and constrain or shape institutions that govern behavior. From a military perspective, this includes aspects such as terrain, weather, urbanized areas, structures, street patterns, etc. In the first and second steps of intelligence preparation of the battlefield, analysts are responsible for defining and describing the operational environment by identifying and analyzing: "specific features of the environment or activities within it, and the physical space where they exist" (Department of the Army 2009b, 2-3) to include their effects. The substantial characteristics of the environment set the stage for generating a backdrop for the physical and material conditions within the IAD framework. Polski and Ostrom note, "It is important to specify these conditions because they have significant implications for policy design, politics, and collection action" (Polski and Ostrom 1999, 9). This is true for military interventions as well.

Physical and material conditions; whether environmental, biological, chemical, elemental composition, etc., are the properties of the world that surround an actor. Hydrology, vegetation, irrigable lands, lines of communications, urban environment, urban patterns, street layout, groundwork, and neighborhood breakout are amongst several of the "various forms of physical infrastructure" according to Polski and Ostrom (1999, 11) that intelligence analysts interpret through analysis. The complexity of the natural sciences and the integration of human structures influence and determine how

individuals will act or react. The framework accounts for these variables in this component.

Geography plays a noteworthy role in physical effects shaping civilization development that intelligence analysts evaluate by conducting terrain analysis. Terrain analysis is the process of analyzing and interpreting geographical natural and "man-made" characteristics and their effects on an operational environment (Department of the Army 1990) and is one of the first analytical considerations. Analysts calculate varying aspects of human and physical geography, not only from a military standpoint, but also from the perspective of geographical effects on the host nation population. This type of analysis gives commanders a general understanding of possible influences on military operations. The use of the IAD framework allows analysts to consider terrain characteristics as they apply to any actor, as well as all other material conditions that affect the action situation. This gives analysts a better way to determine the effects of the operational environment against the assemblages of actors, rather than isolating friendly or enemy forces.[4]

The IAD framework efficiently incorporates terrain analysis as well as weather analysis. Meteorology and climatology factors can influence an actor's behavior in the action situation, as well as alter the various forms of inputs within the distal context of the IAD framework. Earthquakes, volcanic eruptions, and tsunami or hurricane-like conditions can have substantial effects on interactions amongst actors. Not only can severe weather conditions cause devastation that influence the physical conditions within the distal context, but it can also have drastic effects on community of attributes input as well.

The Systems Perspective Approach, also known as the system of systems analysis, utilizes the PMESII model for evaluating the operational environment. JP 2-01.3 prescribes analyzing interconnectedness within the environment that is "functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements that forms a unified whole"[5] (Joint Chiefs of Staff 2007, II-45). This model is another tool that analysts can use to identify physical and material factors within the IAD framework. Components of the PMESII model have utility; however, the current practice of analyzing subsystems undermines the information fidelity. Analysts' training separates each subsystem (political, military, economic, etc.) and analyzes each one in isolation. Connable argues:

> In system of systems analysis (SoSA), people and groups are simplified and categorized to ease the systems mapping process . . . the complex environment is broken down into subsystems, each of which contains a distinct web of nodes (things, people, groups) and links (relationships between nodes). Some of these nodes connect across the boundaries of the subsystems, but the simplicity of this vaguely structural functionality model prevents the depiction of simultaneous multiple identities for any one node.[6] (Connable 2012, 7)

The benefit of utilizing PMESII is it can assist in identifying the variables (inputs) into the distal context of the IAD framework. This arrangement subsequently allows analysts to evaluate interactions as they are within the complexity of environment, without compromising comprehension of cross-system or micro level interaction.

Additionally, the Army utilizes a civil consideration model to conduct intelligence analysis of the human dimension within six categories. Area, structure, capabilities, organizations, people and events (ASCOPE)[7] is an acronym used to determine human dynamics within the operational environment. With a modification of the IAD framework and the inclusion of terrain and weather analysis, "areas," "structure," and "capabilities"

are three elements included into the physical and material conditions in this particular arrangement. The remaining three; “organizations,” “people,” and “events” will be included in attributes of community (Department of the Army 2009a, 3-15). This categorization facilitates an appropriate arrangement allowing analysts to identify accurately, variables within the framework without myopically evaluating through a tool that clusters data.

Another important aspect of physical conditions is time and space. Within the military intelligence community, these two terms refer to the timing synchronization and the geographical proximity to allocate intelligence, surveillance, and reconnaissance assets towards collection. This planning consideration is important as it provides a perspective of how every actor within an action situation perceives and interprets time. JP 2-01.3 indicates, “The duration and timing of operations affects people’s perceptions of operational and strategic effectiveness—both in the operational area and domestically” (Department of the Army 2009a, II 42).

Time is relative in terms of how actors interpret and behave in its context. According to Field Manual 2-01.3, “time influences military operations within an operational environment/*battlespace environment* in terms of the decision cycles, tempo, and planning horizons” (Department of the Army 2009a, 1-9). For analysts to understand the multidimensional aspect of time, one might usefully consider the world through Connolly’s view. Actors, according to Connolly, “participate, rather, in a world of becoming in a universe set on multiple zones of temporality, with each temporal force-field periodically encountering others as outside forces, and the whole universe open to an uncertain degree” (Connolly 2011, KL 92-93). With this concept, an analyst would

interpret multiple factors of physical and material conditions in the context of time, in order to understand the relevancy.

Analysts must adopt a richer concept of time in order to comprehend the notion of emergence within complexity. The world's existence is composed of multifaceted layers of time. Time, according to Connolly, exists at different rates. Punctual time involves routine interaction and this temporal reference is what analysts can associate with; project suspense, a meeting, or an intelligence collection asset estimated time on station. It would appear the nature of military operations, functions on punctual time. Durational time encompasses additional temporal considerations. Features such as mountain ranges, oil, mineral deposits, and coal exist within durational time. Each one morphed into being when variables in the distal context collided, thereby creating something new. Mountain ranges formed from converging plate tectonics during the shifting of the Earth's crust millions of years ago. Time occasionally "propels new things into being" (Connolly 2011, KL 1558) that are unexplainable and random. When analyzing historical accounts of causation, temporality can serve as a pathway to understanding. Understanding the convergence of durational and punctual time, can explain the unsettling chaos that ensues from military intervention within the first few weeks of military deployment into theater. Analysts as well as planners need to understand durational time as a consideration. Durational time arises during moments of reflection such that "action-oriented perception is suspended" (Connolly 2011, KL553). This provides analysts an opportunity to evaluate past actions in order to assess causality and identify variables in the distal context.

Every situation exists within the context and overlap of time. For instance, the Chiricahua Apaches lived amongst the Southeastern region between the U.S. and Mexico

for nearly 400 years. The mountains, having been created by Ussen, were created millions of years prior. It was not until the “White Eyes” sought gold, that disruption of the peaceful way of life occurred (Ball, Henn, and Sánchez 1988, 99). This example contains distinct time lapses and overlaps. These include geographical references to the creation of mountains, the movement of Apachean tribes to the area known at present as Southwest U.S. and Northern Mexico within the North American Continent. Theological time is represented through the use of Ussen and the narrative to creation of the Apache people. Furthermore, the gold rush era of migratory people indicate a much faster pace time reference. This example demonstrates Connolly’s concept of durational and punctual time.

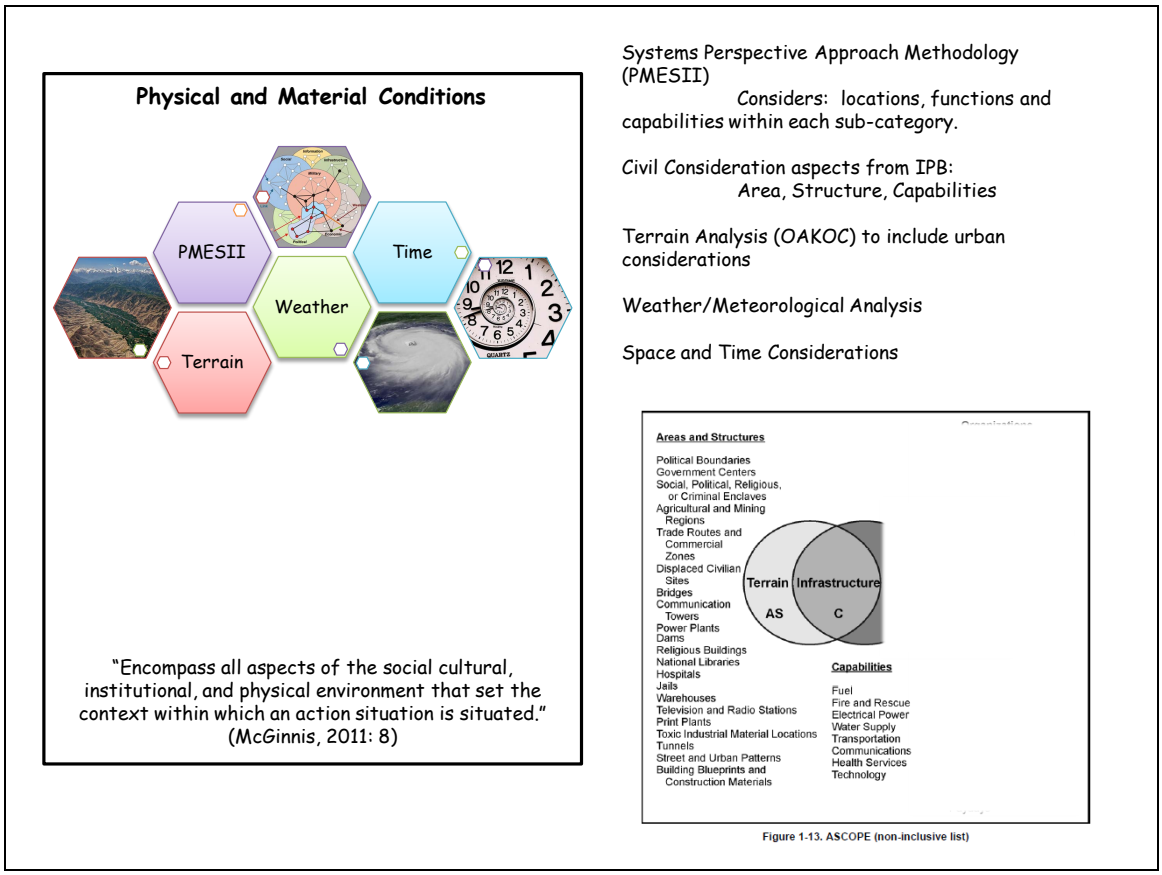

Figure 2. Physical and Material Conditions

Source: Department of the Army, Field Manual Interim (FMI) 2-01.301, *Specific Tactics, Techniques, and Procedures and Applications for Intelligence Preparation of the Battlefield* (Washington, DC: Government Printing Office. 2009), Figure 1-13 ASCOPE.

Attributes of Community

The Department of Defense defines society as "a population whose members are subject to the same political authority, occupy a common territory, have a common culture, and share a sense of identity" (Department of the Army 2009a, IV-2). Nearly every society has a social structure, form of culture and unique characteristics shaped by the geopolitical landscape in which it thrives. Analysts evaluating societal attributes must

include in their analysis factors such as; race and ethnic group, enclaves or networks, and cultural aspects. The framework includes attributes of community comprising all factors that affect the construction of an action situation within a society. The characteristics that shape the situations in which actors participate take into account:

> [T]he values of behavior generally accepted in the community; the level of common understanding that potential participants share (or do not share) about the structure of particular types of action arena; the extent of homogeneity in the references of those living in a community; the size and composition of the relevant community and the extent of inequality of basic needs among those affect. (Ostrom 2005, KL 774)

The remaining civil considerations within ASCOPE are included in this analysis. Organizations such as religious groups or fraternities, people, such as leaders and iconic figures, and events, such as national and religious holidays are analyzed within the attributes of community. Analysis of demographic characteristics in an operational environment is vital, as planners and decision makers must incorporate these aspects as considerations for planning and executing military intervention.

Current doctrine loosely defines race, ethnicity, and culture. It also accounts for roles and status. These key aspects are difficult to understand or to be sensitive towards, if there is no specific way of acutely comprehending the essence of each. Analysts must be able to determine the significance of community attributes that define and shape interactions within any given environment. Additional variables within the landscape actors must navigate that must be considered include: self-identity, self-categorization (the roles that individuals occupy within groups), and perception (Tajfel 1981). This analysis facilitates a comprehensive understanding within the proverbial cultural web or rather cultural complexity and fragmentation (DiMaggio 1997, 264). Analysts must also understand the concept of identity, what it means, how it is defined, and informs

individual and collective actions. Identities are constructed through narratives and societal inputs. This idea includes things such as characteristics, beliefs, a sense of belonging, goals and personal preferences (Howard 2000). Because humans often occupy a myriad of roles, the occupied ones often have "immediate consequences on our sense of self, group schemas often play a major part of processes of identification" (Howard 2000, 368).

Identity is a malleable construct, and Nagel suggests identity is multilayered, where different identities are activated at different times (e.g., for Native Americans-subtribal, tribal, or identities) (Nagel 1995). For instance, the Apache nation is subdivided into different tribes.[8] These include the Bedonkohe, Nednhi, Chohonen, and Chihenne. The tribes, according to Geronimo, "were fast friends in the days of freedom, cling together as they decrease in number. Only the destruction of all our people would dissolve our bonds of friendship" (Geronimo, 293).

Another concept that involves prioritizing identity is self-categorization. An individual actor fulfills multiple roles in their life and prioritizes each role according to self-categorization. In accordance with Apache tradition, members belong to the mother's tribe. Born to Ishton, a Bedonkohe, Daklugie claimed he was Nednhi and not Bedonkohe. Daklugie proclaimed that he had married a Nednhi woman and left his tribe to join hers, subsequently elected to the chieftainship. (Ball, Henn, and Sánchez 1998, 13) This is significant because, in this instance, Daklugie prioritized his identities to the tribe rather than sub-tribal affiliation of his mother to accommodate a marriage. This type of categorization occurs often and unknowingly. Because the volatility of identity morphing and self-categorization shifts, analysts must account for these transitions in their analysis.

It is important to understand how an individual will prioritize interactions within groups especially when potential conflicts arise. This understanding helps analysts understand and assess why certain military interventions are only partially successful, or fail, etc.

Key to shaping the social world is the "important sense in which language constructs the people who use it" (Edelman 1985, 14). Believed to induce and shape behavior and human consciousness, language shapes meaning in the world by constructing beliefs about the significance of events. Language possesses the ability to influence and invoke meaning into a story and the words chosen can artistically render or capsolize the meaning of objects and events, thereby influencing an actor within a given situation. Narratives can provide an analyst insight into the very nature of a people (Edelman 1985, 18).

Analysts must also appreciate the differences in vocabulary that exist in one language and not another. On the one hand, translation is the process of converting words from one linguistic system into another, which includes reordering the words or elaborating, to illuminate exactness of meaning. On the other hand, (mis)interpretations of verbatim conversion can have an alternative meaning. Words matched exactly from one language to another without concern for evoking meaning or words eliminated altogether because a word does not exist can be problematic as this process can potentially cause loss of contextual relevance.[9] The analysis of language allows for a fuller appreciation for semantics. Trying to determine a replica interpretation is critical. Polski and Ostrom suggest that "analysts make an effort to understand the cultural context of policy activity as participants themselves understand it" (Polski and Ostrom 1999, 14).

Cultural expression takes on many forms and is displayed in: artifacts, rituals, myths, ceremonies, and other outward exhibitions of beliefs, identities, and group roles. Culture forms are "the medium for communicating ideologies, values and norms that influence thought and behavior" (Joint Chiefs of Staff 2009a, IV-5). Within the IAD framework, community attributes account for adaptive cultural expression as an input shaping the proximate context of an action. Outward manifestations of identity, culture, and religion give analysts and commanders insight into important practices and beliefs of the local populace. Traditional ceremonies, for example, provide a viewpoint into the operational environment that illustrates vast amounts of information. Sacred rituals possess customs that military practitioners may not understand. Marriages, burial procedures, and disposing of holy texts are included in this component of the framework.

For example, an Apache marriage ceremony is a sacred and permanent (barring atypical situations) union between two people. According to Daklugie, "Marriage is something of the heart, not words mumbled by some medicine Man. Our people gave a four-day feast and at the end of it, sunset, the marriage ceremony was finished. The young couple's parents had officially announced their marriage" (Ball, Henn, and Sánchez 1988, 31).

Understanding compulsory attitudes and perceptions within a community is tremendously important. This knowledge or information allows analysts to account for sentiments, assess causality and make recommendations to decision makers based on historical accounts of attitudes and perceptions already in place. As Daklugie describes:

> As enemies, the Mexicans were nothing in comparison with the White Eyes who came in from the east. . . . At first there were few white people, and they were all going west; brought them in hordes. Though most of them went on, some stayed

> to burrow into Mother Earth for the ore sacred to Ussen. Nana was right in thinking that gold was to bring about our extermination.

Sentimental understanding can provide critical details essential for formulating a plan that accounts for the tone and subtleties needed for military involvement, especially towards hostilities. This type of information can avert or adjust intervention counterintuitive to the end state a military commander seeks.

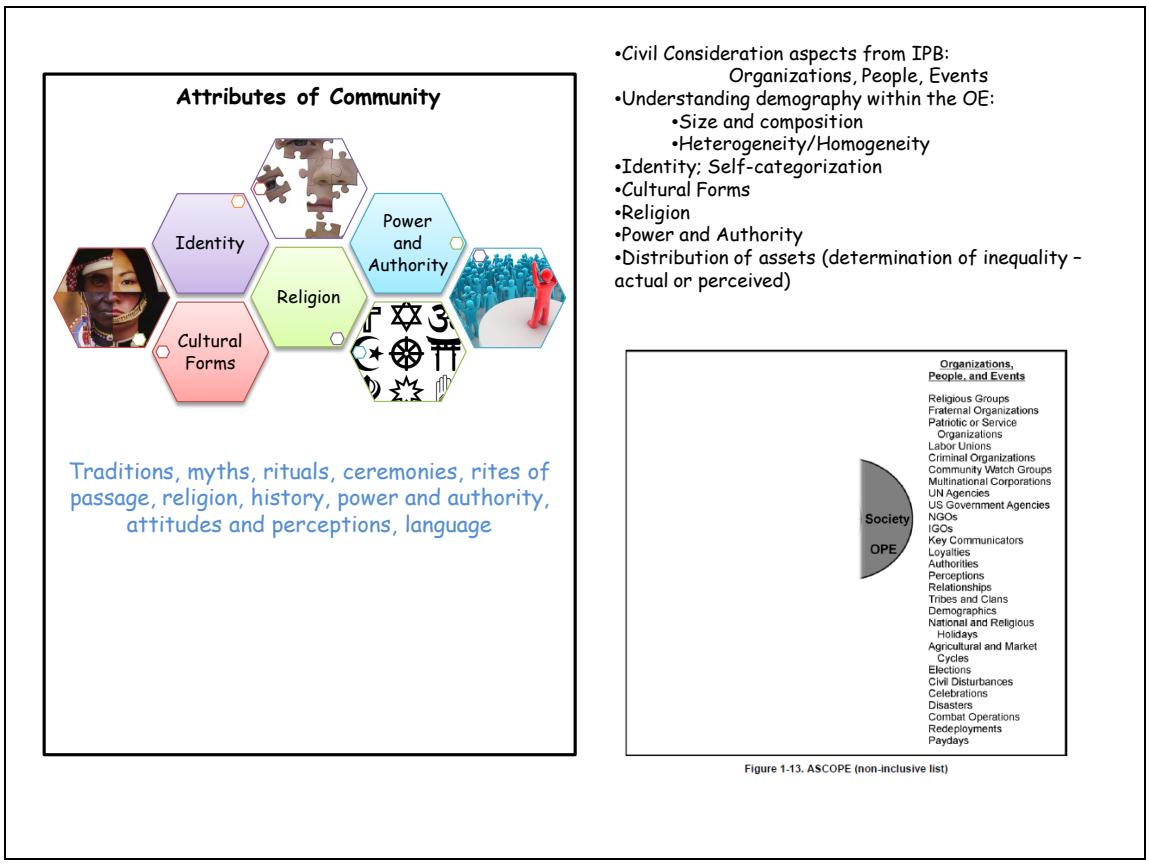

Figure 3. Attributes of Community

Source: Department of the Army, Field Manual Interim (FMI) 2-01.301, *Specific Tactics, Techniques, and Procedures and Applications for Intelligence Preparation of the Battlefield* (Washington, DC: Government Printing Office. 2009), Figure 1-13 ASCOPE

Rules-in-Use

Laws, constitutions, policies, restrictions, regulations, rules, and other behavior constricting elements exemplify rules-in-use. Gibson explains that "rules are shared understandings among those involved that refer to enforced prescription about what actions (or states of the world) are required, prohibited, or permitted" (Gibson et al. 2009, 33). Ostrom's rules-in-use concept accounts for a system of socially produced rules, operating in a variety of ways that affect each component within the action situation. She says:

> Rules are shared understandings among those involved that refer to enforced prescription about what actions (or states of the world) are required, prohibited, or permitted. All rules are the result of implicit or explicit efforts to achieve order and predictability among humans by creating classes of persons (position) that are then required, permitted, or forbidden to take classes of actions in relation to required, permitted, or forbidden states of the world.[10] (Ostrom 2011)

Rules function within the entirety of the distal context. Analysts must identify the rules at play that will affect each component within an action situation. This analysis constitutes a partial basis for understanding and explaining subsequent actions (Ostrom 2011, 19). Conventional intelligence analysis does not specifically identify rules governing actors' behaviors, the roles they fulfill, or the likely outcomes based on patterns of interactions. Determining what rules influence actors in a given operational environment can be instrumental to commanders' decision-making as it best supports planning development tailored to the ongoing situation.

Rules give analysts another way to examine interactions ongoing in the operational environment. By understanding the integration of rules affecting action situations, and evaluating observable patterns of behavior through intelligence collection efforts, as well as exploitation, analysts can determine an actor's role, group belonging,

associations, and potentially causal relationships. Polski and Ostrom suggest that, "the types of rules the IAD framework asks us to consider in an institutional analysis are closely linked to the elements of an action situation. They are the minimal but necessary set of rules that are needed to explain policy-related actions interactions and outcomes" (Polski and Ostrom 1999, 15).

The IAD framework contains seven categories for rules that analysts can use to evaluate the context of interactions. The rules include; position, boundary, authority, aggregation, scope, information, and payoff (Polski and Ostrom 1999, 16). "Position rules" ascribe requirements within roles. These may include the quantity and type of positions available to participants. Furthermore, analysts must consider self-imposed rules. Although identities are relevant to the community attributes within this framework, the roles that individuals play within groups have ascribed position rules as noted by Ostrom. "Boundary rules" set the terms and conditions for what positions a participant can obtain. For example, tribal hierarchy may prescribe positions filled through "hypodescent"[11] determination or by electoral processes. In Apache tradition, according to Opler, "the hereditary rights of a leader are honored only as long as he can fulfill the promise of his birth" (Opler 1996, 470). Leadership positions require great communication skills, charisma, and sympathy (Opler 1996, 468).

Other considerations for rules-in-use are power and authority. "Authority rules" define a position's actions. A leader's decision can be constrained by what group members are willing to accept externally based on attributes of community and the leader's internal acceptance of those same attributes (Smith 2003). Within JIPOE, analysts must be able to identify and delineate between sources and types of formal and

informal powers, its distribution, and the actors' ability to influence it (Joint Chiefs of Staff 2009a, IV-6). In this analysis, the power and authority variables correlate with rules-in-use and are separate from the roles (positions) and the actors (participants), as these analyses of the interaction are evaluated by these two entities within the action situation.

"Aggregation rules" determine how decisions are made in an action situation. An action situation containing multiple members could potentially have varying control over the action selected. Ostrom states that "aggregation rules are necessary whenever choice rules assign multiple positions partial control over the same set of action variables" (Ostrom 2005, KL 4230). "Information rules" determine the amount and type of rules participants have. The accessibility or availability to information can shape the action selection process and the outcome of any given situation. "Payoff rules" detail the costs and benefits within the action situation (Polski and Ostrom 1999; Ostrom 2005; Ostrom 2011; Gibson et al. 2009; McGinnis 2011). "Scope rules" detail the control of outcomes and determine whether outcomes are final. This rule is also the default rule. If an analyst determines that a rule does not fit in any other category, it is a "scope" rule. These help analysts best understand and describe ongoing interactions within the action situation. For intelligence analysts, evaluating rules-in-use can assist commanders with identifying locations for exploitation opportunities utilizing effects based military operations.

"Rules are frequently nested in others sets of rules that define how lower-level rules function" (Polski and Ostrom 1999, 19). There are three levels of rules' analyses that analysts must include; operating, collective-choice, and constitutional. Ostrom states, "operational rules directly affect participants' day-to-day decision making" (Ostrom

2005, KL 1401-1402). A tribe member exercises operating rules within their home, such as daily internal family discipline and duties. Collective-choice determines participation eligibility and "the specific rules to be used in changing operational rules" (Ostrom 2005, KL 1403-1404). A tribe's chieftain and medicine man would represent this rule level. They are able to implement rules affecting members within the tribe. Constitutional rules determine who can make and change rules at the lower level (Polski and Ostrom 1999, 19). An example this rule echelon would be tribal alliances formed with other sub-tribes. Additionally, endogenous and exogenous variables in society can transform these rules. Situations such as the U.S. Government implementing territory acts and establishing reservations dynamically changed all levels of rules-in-use by the Apachean tribes.

Simultaneous rules-in-use can affect an actor's option selection process. Known as a belief system, these rules govern individuals within the action situation and are comprised of: "the totality of the identities, beliefs, values, attitudes, and perceptions that an individual holds (and the ranking of their importance)" (Joint Chiefs of Staff 2007, IV-5). Belief systems act as "filters through which individuals process and adapt to new information" (Joint Chiefs of Staff 2007, IV-5). This filtering process occurs via a feedback mechanism from outcomes that can potentially modify existing views of the world. Analysts understanding the multiplicity and nested rules-in-use within the context of a situation can better define the operational environment and current situational template.

Nested within narratives is a belief system that governs an individual's actions. These provide explanation for strongly held beliefs and how individuals and groups perceive their experiences. For instance, Geronimo's terms for surrender exemplify an

outward expression of his belief system. Following the U.S. cavalry manhunt to capture rogue Apaches, Geronimo ultimately surrendered on behalf of his people. "We stood between his troopers and my warriors. We placed a large stone on the blanket before us. Our treaty was made by this stone, and it was to last until the stone should crumble to dust; so we made the treaty, and bound each other with an oath" (Geronimo and Barrett 1996, KL 585). Apaches relied heavily on the belief that a man's word was his bond. Belief systems, in this case, give military practitioners an assessment forum which allows analysts to recognize patterns of exhibited behaviors.

Values are another important aspect analysts should consider as these can express similar regulating properties to identity and social norms. According to Hitlin, "Values fulfill five criteria: (1) they are concepts or beliefs, (2) they pertain to desirable end states or behaviors, (3) they transcend specific situations, (4) they guide selection or evaluation of behavior and events, and (5) they are ordered by relative importance (Hitlin 2003, 119).[12] The IAD framework accounts for unobservable interactions within self and community, through narratives or evident overt exhibition of behaviors and interactions. Analysts can confirm or deny patterns of interaction through intelligence collection tasking or requests.

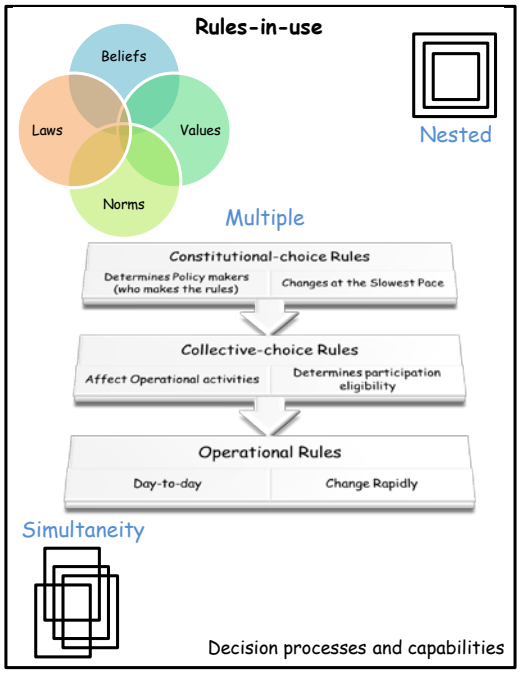

Figure 4. Rules-in-Use

Source: Elinor Ostrom, *Understanding Institutional Diversity* (2005. Kindle Edition); Michael D. McGinnis, An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework, *The Policy Studies Journal* 39, no. 1 (2011): 169-183.

Proximate Context

The proximate context within the modified IAD framework contains the components of the action situation and narratives. This loosely assembled construct is susceptible to influence from the inputs from distal context. This arrangement facilitates understanding of the action situation's configuration and the analysis of interactions (Polski and Ostrom 1999; Ostrom 2005; Gibson et al. 2009; Ostrom 2011, McGinnis 2011).

Components of an Action Situation

Analytical practices frequently contain tendencies to dissect complex problems, analyze the subparts, and attempt to assess the entirety of a situation by the sum of its parts. Fracturing analyses to accommodate a better understanding in the subcomponent generates an in-depth appreciation for the entity in isolation. It fails to recognize the relationship between the components and the functionality of the system in its entirety.

Rather than continuing down the path of perpetual order of battle charts and enemy link diagrams, the "relevant" information that decision makers require are the action situations and interactions between open systems and actors. Ostrom states all situations are similarly structured containing variables that can be identified, described and analyzed such as:

> (1) A set of participants, (2) the positions filled by those participants, (3) the potential outcomes, (4) the set of allowable actions and the function that maps actions into realized outcomes, (5) the control that an individual has in regard to this function, (6) the information available to participants about actions and (7) outcomes and their linkages and the costs and benefits–which serve as incentives and deterrents-assigned to those actions. (Ostrom 2005)

The action situation, where human behavior or interaction takes place, is the focal unit of analysis. This conception facilitates an analyst's ability to: "describe, analyze, predict and explain behavior within institutional arrangements" (Ostrom 2011, 11). Institutional arrangements can range from U.S. imposed localized governance, to a pseudo-economic system of illicit drug trafficking. The purpose of focusing on this unit of analysis is to evaluate the components within an operational environment and generate a coherent assessment that reflects accurately the ongoing situations. In this framework, the unit of analysis is interaction. The type of analysis requires commanders to allow

analysts, as Connable suggests, to "view the people and groups . . . as they are and not how they would like them to be" (Connable 2012, 17).

Analyzing interactions depicts complexity in the environment because it rids the categorization and fragmentation normally associated with niche intelligence practices. Connable posits "behavioral intelligence analysis" would analyze not only "observed behaviors", but also "intent and perception based on intelligence information" (Connable 2012, 20). This concept complements Ostrom's focus on interactions, albeit without a framework to conduct the analysis while maintaining contextual relevance.

The action situations Ostrom describes "are social spaces where individuals interact, exchange goods and services, solve problems, dominate one another, or fight (among the many things that individuals do in action situations)" (Ostrom 2011, 11). Within the framework, this is where actors consider and select between different options, act, and experience the effects of their choice. Ostrom emphasizes that "in the IAD approach, it is very important to rigorously analyze the decision-making capabilities of actors" (Ostrom 2011, 21-22). Narrowing the focus on elements in the proximate structure or context enables examination of interactions and their outcomes. The ability to evaluate human behaviors and results of interaction enables a more accurate depiction of ground truth or, as Flynn says, "grassroots" (Flynn, Pottinger, and Batchelor 2010, 13). For military practitioners, this is indispensably meaningful. It allows for planners and decision makers to develop and execute courses of action for shaping, supporting, or decisive operations with the objectives of altering, enabling, or denying future interactions.

A participant can be an individual or group of actors subjected to the variables from the distal context (physical and material conditions, attributes of community, and rules-in-use) and behave according to the factors input into the action situation. "Participants" according to Ostrom "are decision-making entities assigned to a position and capable of selecting actions from a set of alternatives made available at nodes in a decision process" (Ostrom 2005, KL 982). Participants are unique and bring an assortment of dynamics to the situation without external input from the distal context. Analysts must be cautious that an actor's "baggage" can affect the dynamic of the action situation. These characteristics, such as identity, were described earlier in attributes of community. Additionally, analysts should not segregate individual attributes from the interactions or belonging to a community.

Another element within the action situation is position. Positions are vacancies within the action situation that are filled by participants to act in a prescribed role, and as Ostrom explains, "are thus the connecting link between participants and actions" (Ostrom 2005, KL 1044). Positions, like rules-in-use, can be expressed in multiplicity. Actors can occupy simultaneous roles such as being a son, father, tribal member, chieftain, and an Apache representative in the Bureau of Indian Affairs of the U.S. Department of Interior.

Participants base the selection of actions on a few distinct variables, such as; alternative options, information, control, and the participant's analysis of cost benefit. These variables are mutually dependent. An actor must decide what action is suitable based on the information accessibility and availability of a given circumstance. This data informs the actor to consider the available options and determine which is obtainable. An actor choosing an action based on their own decision or in compliance with others,

illustrates the level of control the participant has over options. Because the elements within the distal context create option availability, actors calculate what choice, of those options, is most advantageous through cost benefit analysis "external incentives and deterrents in a situation" (Ostrom 2005, KL 893). The participants, the information each has available, and rules-in-use within the action determine the outcomes.[13] Ostrom notes "once the constraints of the physical and material world, community attributes, and rules-in-use are taken into consideration, patterns of interaction flow logically from the behavior of actors in the action arena. Patterns of interaction refer to the structural characteristics of an action situation and the conduct of participants in the resulting structure" (Ostrom 2011, 24).

Outcomes are results of selected actions, shaped by both the outputs of the action situation and external factors. McGinnis states, "Outcomes are generated by the conjuncture of the outputs of a given action situation, other closely related action situations, and exogenous influences that may not always be subject to effective control of human intervention" (McGinnis 2011, 14). Analyzing outcomes is essential because it assesses whether participants in the action situation are achieving their desired result, based on the selection of an action. More notably, it allows analysts to assess likely outcomes based on varying alterations made to the action situation. This type of analysis gives the analyst a way to formulate hypotheses about potential occurrences, given a modification to the arrangement an actor faced (Ostrom 2005). These evaluations forecast possible courses of action military commanders could apply, to achieve desired affects with an area of operation.

Outcomes can also have significant effects on future action situations, as they can shape and influence the distal and proximate contexts. Changed narratives or modified rules-in-use are two possible instances where outcome can frame future actions. For instance, the oral history of the Apache religion changed through the years to account for the adversity the Apaches felt they had endured.

> When the Child of the Waters, son of Ussen, came to the Earthland, he gave the Apaches things good for them: herbs, plants for food, and weapons. To the Indians he gave the bow and arrow, the shield, the spear and the sling. And to the White Eyes he gave the pick and shovel. It was what he gave to them that caused all the trouble. With the pick and shovel the prospectors grubbed in the body of Mother Earth for the forbidden gold and caused the mountains to dance and shake their shoulders. Mother Earth opened up and swallowed whole villages. (Ball, Henn, and Sánchez 1988, 99)

This narrative shaped the way the Apaches viewed the Americans and also modified the rule-in-use that governed the future interactions.

Evaluation criteria, according to McGinnis, can "be used by the participant or external observers [i.e. military practitioner] to determine which aspects of the observed outcomes are deemed satisfactory and which aspects are in need of improvement" (McGinnis 2011, 14). Military practitioners consistently develop evaluation mechanisms or metrics to assess the outcome of military operations: "Evaluation enables us to make qualitative and lexical distinctions among the infinite variety of events, experiences, characters, institutional promises, and social factors that impinge on our lives" (Somers 1994, 617). There are a myriad of tools available to the military practitioner to observe changes in patterns of interaction and practices, as well as evaluate certain outcomes. Measures of performance and measures of effectiveness are diagnostic tools military practitioners utilize to gauge operational efficiency. Other tools include surveillance and

reconnaissance, operational summaries, gathering atmospherics through narratives, and collecting reflections using intelligence assets.

Stories and Narratives

Discerning fact from opinion during military operations is challenging. Military intervention essentially includes interactions with the local populace. Patrols, key leader engagements, or source operations all involve a summation, usually in the form of report, writing upon mission completion. Because the operational environment adds a degree of uncertainty, gathering as much information about the situation helps clarify the unknown. Walton argues that another "way to deal with uncertainty is to consider multiple explanations and then try to determine which is the most plausible" (Walton 2011, 458-459).

The construction of stories allows individuals to develop narratives regarding their associations and memberships to groups, as well as justify patterns of interactions with others. Narratives ebb and flow with internal and external changes affecting the action situation. Story composition accounts for self-identity, self-categorization, and historical accounts that determine the fragmentation of culture. These weigh significantly on the details exposed on accounts experienced and given. Additionally, stories identify and define who belongs in a group, and covertly or overtly, who does not. People belong to groups that can and want to give members what they need. Because, typically, individuals are members of, or have affiliations to more than one group, they will likely have multiple narratives with potentially inconsistent identities, interests, and ideals.

Rogers Smith's concept, *Stories of Peoplehood*, suggests that narratives and stories depict the relevance of detailed and grassroots perspectives in the formation of

organizations and communities.[14] It is within narratives where analysts can draw various perspectives and make conclusions of a populace. Stories attempt to provide individuals comfort in their sense of worth and belonging within groups. Smith's principle argument is that engagement forms political communities. The "constrained, asymmetrical interactions between actual and would-be leaders and the potential constituents" result in a political group. Actors perform these types of interactions as a balancing act between internal and external powers, jockeying for control over the group using coercive force or persuasive storytelling: "Enduring accounts of people hood inspire senses of trust and worth among the members of a people by weaving together economic, political power, and ethically constitutive stories tailored to persuade a critical mass of constituents while also advancing partisan elites interests" (Smith 2003, 69-70).

Somers posits the need for "narrativity" that accounts for social action given the inability to account for multiplicity in roles or identities.[15] This also includes actors and their position within an action situation, whether it be an institutional formation, a group or as an individual. She summarizes:

> [S]cholars are postulating something much more substantive about narrative: namely, that social life is itself storied and that narrative is an ontological condition of social life. Their research is showing us that stories guide action; that people construct identities (however multiple and changing) by locating themselves or being located within a repertoire of emplotted stories; that "experience" is constituted through narratives; that people make sense of what has happened and is happening to them by attempting to assemble or in some way to integrate these happening within one or more narratives; and that people are guided to act in certain ways, and not others, on the basis of the projections, expectations, and memories derived from a multiplicity but ultimately limited repertoire of available social, public, and cultural narratives. (Somers 1994, 613-614)

The importance of story gathering through a perspective lens of the local populace can often be daunting, but has significant applicability to military practitioners' work. When

Eve Ball tried to obtain perspectives from the Apaches, she met hesitation and multiple rejections to meeting proposals from the chieftain. Only out of insistence regarding the preservation of the Ndeh Apache history and tradition, did Asa Daklugie disclose firsthand accounts of his people. Asa Daklugie is the aged son of Juh, nephew of Geronimo, and the dominant patriarch of the Mescalero Apache Reservation (Ball, Henn, and Sánchez 1988, xviii). Ball captures, on behalf of Daklugie, that "Captain John Bourke says, 'There was a coincidence of sentiment among all people whose opinion was worthy of consideration, that the blame did not rest with the Indians. . . . No one had heard the Apache's story, and no one seemed to care whether they had a story or not'" (Ball, Henn, and Sánchez 1988, 55).

Military practitioners face difficulties in obtaining narratives pertaining to the interactions occurring with the operational environment. From human intelligence and Special Forces operators, to military commanders and combat patrols, casual and formal dealings with the population create opportunities to obtain stories. Interactions with the native persons are important in establishing credibility and trust. It is also important to witness the dialogue expand and morph over time. These provide insights into changes occurring within the distal context (inputs) that shape and influence the action situation. Military decision makers can determine the successes and failures of military intervention through atmospherics, thereby identifying areas of emphasis or change. It is also important to understand that with the violent application of military intervention, there is opportunity for narratives to change and perceptions to shift.

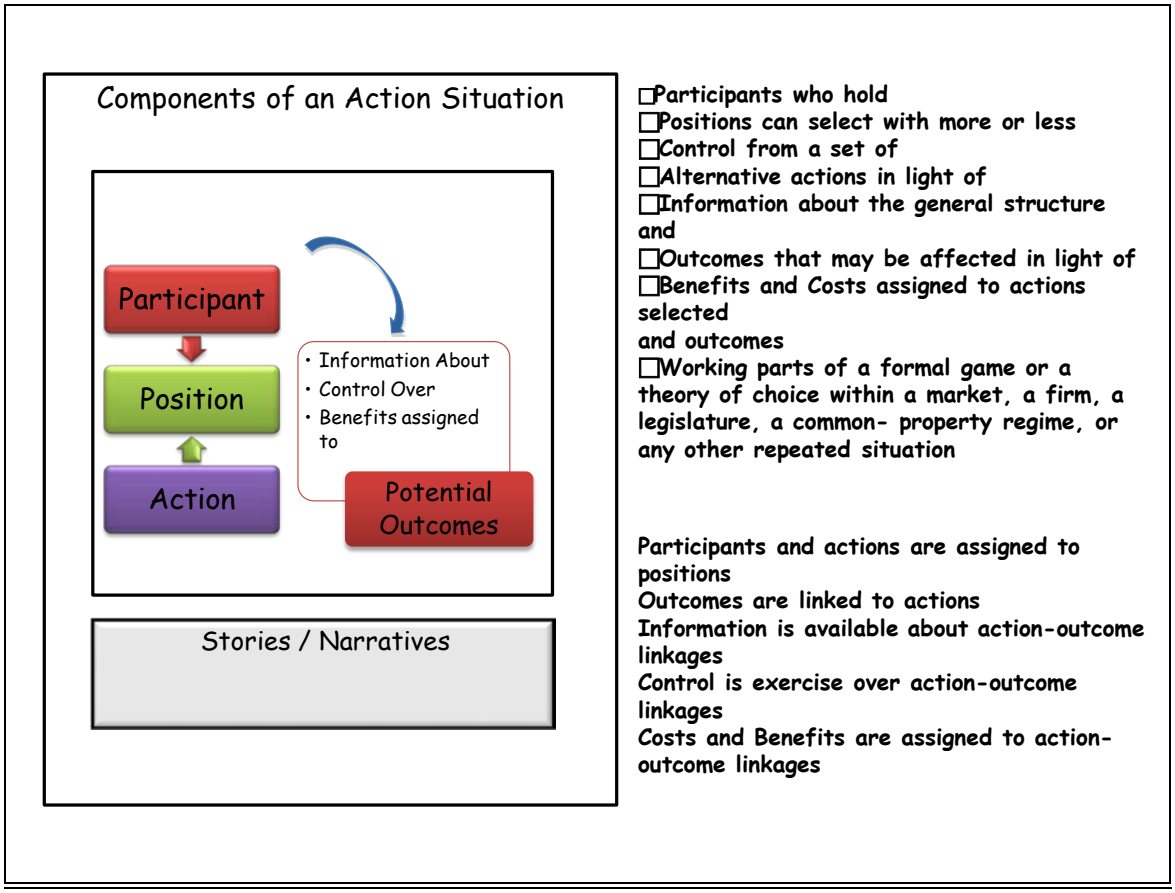

Figure 5. Components of the Action Situation

Source: Elinor Ostrom, *Understanding Institutional Diversity* (2005. Kindle Edition); Michael D. McGinnis, "An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework," *The Policy Studies Journal* 39, no. 1 (2011): 169-183.

Causal Claims

"Intelligence is produced through the integration, evaluation, analysis, and interpretation of information from single or multiple sources" (Joint Chiefs of Staff 2012, III-40). Converting information into intelligence through the process of analysis is a fundamental task inherent to every analyst. This structured procedure comprised of actions, formulates an assessment providing a decision maker with the intelligence

needed to make sound decisions. During the evaluation, integration, and interpretation steps, analysts must discern between fact and faux and derive a generalized understanding of causal relationships, based on interactions between actors operating within a specified environment.

The JP for intelligence operations suggests deducing information during analysis and interpretation to comprehending interactions. JP 2-01 suggests that "this mental process involves the identification of new activity, recognizing the absence of activity, and a postulation regarding the significance of that activity" (Joint Chiefs of Staff 2012, III-43). However, deduction alone cannot formulate an understanding and justification of interactions ongoing in any given situation. To draw underlying conclusions about actions occurring within an area of responsibility, analysts must be cognizant of causal claims and utilize abduction for reasoning while making assessments.

Deduction is a reasoning process that utilizes a generalized theory to make causal claims about actions occurring in the world. However, this does not account for underlying or hidden reasons possibly linked to an explanation for causality. Induction is a form of reasoning that bases creation of a theory on observations with the probability of the theory likely being true. Abduction is a form of reasoning where inferences made are based on the best explanations of occurrences, taking into account multiple theories (hypotheses) and applying them to a set of observations. This form of reasoning provides the greatest consideration for possible cause and effect relationships and eliminates isolating linear singular causation.[16]

From source operations and sensor collection, to report writing and assessment generation, causality binds the analyst's conclusions about exchanges occurring within

the operation environment. Causal claims are inherent to any military intelligence analyst's work. Often times, commanders ask their intelligence professionals why situations exist or what circumstances enabled a particular outcome. It is imperative for military intelligence analysts to understand causality, especially within the analytical and assessment development processes.

Understanding causal claims is significant within the IAD framework and especially within the distal context of analyses. The analytical tendency is to attribute linear logic to causation using independent variable and dependent variables to explain actions within the operational environment. However, this may not always be the case. It is important to understand contextual factors shaping the action situation, but it is also important to define why actors choose behaviors according to these as well. In formulating assessments, analysts need to consider four major categories in logics of explanations. Parsons proposes "a typology of explanations of human action. It focuses on explanations of political action–relating to governance, power, and the distribution of resources–but its breakdown applies across the social sciences and history" (Parsons 2007, KL 25).

Parsons generates a formulation for causal mechanisms that typify four major categories: structural, institutional, ideational, and psychological. These comprise the construct to understand explanatory logic: "People arrive at certain actions due to some combination of causal forces from their structural-material surroundings, their man-made organizational context, their socially constructed ideational elements, or their physiologically hard-wired mental dispositions and motivations" (Parsons 2007, KL 520-521).

"Structural claims", as Parsons defines, "explain what people do as a function of their position vis-a-vis exogenously given 'material' structures like geography, a distribution of wealth, or a distribution of physical power" (Parsons 2007, 12). Terrain and its effects on human behavior can be explained through Parsons' structural explanatory logic. Navigating a landscape where material structures, either natural or manmade, are immovable and present obstacles limit the actor's choice or option availability. Ostrom discusses the biophysical and material conditions as one aspect that shapes an action situation. Similarly, exogenous variables or inputs determine the available choices actors have in the action situation. For example, the Apaches living in the arid plains and desert mountain regions were hunter and gatherers, rather than agriculturally based because terrain and climate did not afford agriculture (Opler 1996).

Parson states that "institutional claims explain what people do as a function of their position within man-made organizations and rules (and within the 'path-dependent' process implied by man-made constraints: people's choices at time t alter their own constraints at time t+1)" (Parsons 2007, 12). Institution creation is augmenting other causal formations (i.e. structures, institutions, ideas, and psychological elements) that seek to address a specific purpose. Although, these creations are intended to have specific intentions and effects, they cause actors to act in certain ways. Typically, institutions provoke unintended consequences (Parson 2007, 67-68).

An analyst could make an institutional claim explaining the raiding techniques used by the Apache tribes during the Apache Wars. For example, the migration from hunting to raiding transformed the economic stability within the Chiricahua Apache tribes. As the number of settlers began to settle in the grazing lands where Apaches

hunted wild game, there was a shift in hunting locales across the tribal region. With the lack of game availability, starvation became prevalent. In order to purchase food and materials, Apaches supplemented hunting activities with raids to acquire "booty" for the purposes of trade (Opler 1996).

"Ideational claims explain what people do as a function of the cognitive and/or affective elements that organize their thinking, and see these elements as created by certain historical groups of people" (Parsons 2007, 12). Norms, values, and belief systems lead actors to interpret the world in a certain way. Ideational logic explicates actions as an outcome of this interpretation (Parsons 2007, 100). An explanation for the inability of Apaches to lay down weapons and cease violent engagement with U.S. Troops was the belief that Ussen had placed the Apaches on the Earth to roam free and live off the land (Ball, Henn, and Sánchez 1988, 56).

"Psychological claims explain what people do as a function of the cognitive, affective, or instinctual elements that organize their thinking, but see these elements as general across humankind, as hard-wired features of 'how humans think'" (Parsons 2007, 12). These types of claims involve an innate nature to behave or act in a certain way because it has been predetermined or hardwired (Parsons 2007, 133). An analyst could explain the incident at Cibicue[17] Creek using psychological logic. Believing that a shaman was rallying neighboring Apache tribes to conduct a counter attack against Fort Apache, conveyed by the Bureau of Indian Affairs representative, Colonel Carr took preemptive measures by arresting the medicine man (Yenne 2006, KL 4731).

> Preemptive warfare is the practice of attempting to avoid an enemy's seemingly imminent attack by taking military action against them first. It is undertaken in self-defense. Preemptive war is often confused with *preventive war*, which is an

> attack launched to defeat a potential opponent and is an act of aggression. Preemptive war is thought to be justified and honorable, while preventive war violates international law. In the real world, the distinction between the two is highly contested. (Flynn 2008)

Fearing treachery, the tribal leaders followed the Cavalry soldiers and the shaman to the campsite and established over watch positions. The soldiers asked the Indians to leave and the tribal leaders refused: "Suddenly a shot was fired–then many (Ball, Henn, and Sánchez 1988, 54) and it was unclear who shot first. In this example, an analyst could assert that the psychological claim or reason for the firefight initiation was due to perception of threat. This focuses on the human nature of fear hardwired in all individuals. The Cavalry soldiers feared that the Indians may attack from their observation posts and the Apaches feared the soldiers would kill the shaman.

Emergent causality presents alternate considerations of causal relationships that extend beyond the dependent and independent linear causation analysts are comfortable assessing. Connolly discusses interactions between open systems insofar as the interplay and existence of each can have compounding and changing effects on the other, whereby the interactions can generate emergence of new or changed systems. Connolly states:

> Some causal relations are not susceptible to either efficient or mechanical modes of analysis. There are efficient causes, as when, to take a classic example, one billiard ball moves another in a specific direction. But *emergent causality*–the dicey process by which new entities and processes periodically surge into being–is irreducible to efficient causality. It is a mode in which new forces can trigger novel patterns of *self-organization* in a thing, species, system or being, sometimes allowing something new to emerge from the swirl back and forth between them: a new species, state of the universe, weather system, ecological balance, or political formation. (Connolly 2011, KL 622-626)

This logic adds further detail to explain and account for the complexity and adaptive characteristics within an operational environment through emergence. The inclusion of emergence within the intelligence preparation of the operational environment and

assessments is important, especially with the application of military intervention and the dynamics of military forces operating amongst and within the local populations of a given area.

Ostrom's framework accounts for the causal claims Parsons and Connolly impart in their works. The framework provides a means for analysts to construct thinking and analysis, as well as outline the variables effecting the environment in a manner that facilitates interpretation of causality through abductive reasoning. This paradigm allows analysts to evaluate interaction amongst all actors within a complex operational environment at any given echelon, to provide a deeper appreciation for the subtleties influencing system exchanges.

Analysts make causal claims in their assessments and therefore it is important to account for causality as it exists and not as it fits into the basis of understanding. Intelligence professionals must be able to delineate causal claims and provide clarity to the complexity of an operational environment. An illuminated understanding of causality can provide decision makers with the indispensible information to best select ways of intervene and better assess effectiveness.

Common Analytical Pitfalls

Intelligence analysts are under constant pressure to make inferences, with precision, in a time constrained environment. These suppositions are based on limited and unstructured data, contain narratives from competing sources of questionable reliability, and might discount data sources based on partiality. These calculations and assessments provide the basis for the development of plans, course of actions, and strategies that are

presented to decision makers. Because analytical mistakes can be costly, analysts should recognize common analytical pitfalls.

Intelligence production occurs at nearly every echelon in the military with the information flow historically coming from the strategic level and then disseminated to subordinates. In recent years, concentration of requests for information and intelligence is bottom-up driven. Micro level analysis is susceptible to a number of research pitfalls. These include problematic proxies, observational equivalence, endogeneity, overaggregation, and omitted variable bias (Kalyvas 2008, 401). This is exceptionally true of military intelligence analysis occurring simultaneously at different echelons.

The nature of war creates operational environmental attributes (e.g. attitudes, loyalty, influence, etc.) that are not subject to direct measurement. Because of this, proxy variables are extremely important and used frequently by military practitioners and analysts. An analyst approximating incalculable factors via a measurable "proxy" defines "problematic proxies." Proxies, which are imperfect, can compromise assessments made from the data. This pitfall, according to Kalyvas, yields "conflation of two related, yet distinct, concepts" and produces analytical opacity resulting in poor assessments (Kalyvas 2008, 401). For example, problematic proxies are evident where the idea of effective governance and a lull in enemy operational tempo is conflated with effective governance. Using significant activity numbers as an indication of a decrease of attacks of conflict is erroneous, as a lack of attacks does not always indicate a lack of hostilities.

Frequently, observations are equally attributable to more than one explanation. In "observational equivalence," analysts that ignore other plausible explanations can undermine assessments made from collected data. Observational equivalence can

disguise other explanations for the same outcome and the ability to discriminate between two reasonable hypotheses is not easy (Kalyvas 2008, 401-402). An example of this would be accounting for the reason(s) why a host nation population would not vote. One analyst could assess, that the security situation did not permit voters to cast their ballots. Another plausible theory would be that the local populace refused to vote, as a form of protest due to perceptions of illegitimate governance. What is necessary in this instance is to obtain evidence that can confirm or deny which hypothesis is actually correct. More importantly, it is imperative that analysts avoid the danger of confirmation bias (selecting a theory, collecting and selecting evidence based on the theory in order to conclude that it was correct).

The analytical fault, "endogeneity," occurs when there is contestability in causal direction between variables. Frequently, analysts use causal relationships to explain data. In this particular problem, there is counter-evidence regarding the source of causation. Because the direction of the causal relationship is not self-evident and there is difficulty identifying the exact cause–endogeneity ensues (Kalyvas 2008, 402-403). An example of this is an analyst assessing an increase in the enemy activity based on the number of friendly patrols, when in fact, the number of friendly patrols could account for the reason there is an increase in enemy activity. In U.S. history:

> [C]liché and error paint Geronimo as one of the bloodiest villains of the Indian wars. This is not so. His rampage–if one could call it such–began when his wife Gee-esh-kizm, Juana, and three children were murdered at what has since become known as the Massacre of Kas-ki-yah, near Janos Mexico, in 1858. (Gatewood 2005)

In this example, one analyst could assess that the Apaches were vicious and the Cavalry soldiers in the Southwestern U.S. required heavy handedness. Another analyst might

evaluate the same situation and assess that the Apaches, and in the case Geronimo, did not become violent until after his family was murdered.

Military operations, the application of military force, and the engagement with the local populace create multiple venues in which to collect data. These interactions contain common features that allow grouping of data to make meaningful inferences regarding the situation. However, how analysts cluster or group data can affect the range of data interpretations. “Overaggregation” is a bias where analysts oversimplify the results of data by generically applying numbers with superficial analysis. The broader the range of data points formulated, the less insight analysts obtain as it masks granularity. For example, an analyst may discover no connection between levels of violence and the change of seasons, without disaggregating the data by monthly average temperature or snow melting, in this case. This can include unqualified, past data that does not contain the necessary micro level detail required to make analytical assessments: “In other words, this is an inefficient use of data dictated by the availability of an ‘off-the-shelf’ dataset” (Kalyvas 2008, 404). Another example of overaggregation would be falsely attributing violence to terrorism without delineating the violent acts by type or the group conducting the attacks.

Finally, “omitted variable bias” is an analytical flaw where analysts fail to recognize the impact or incorporate a variable when determining causality. Examining a correlation between two variables assists in illuminating causal relationships. Conversely, correlation alone insufficiently determines whether selected variables sourced causation or if another, unselected (omitted) factor did. Assessing motivation is a common task for intelligence analysts. Anti-U.S. sentiment and hostile ideological loyalties to a popular

insurgent group might be amongst the motivational factors that would incentivize a person to emplace an improvised explosive device against a convoy. However, an impoverished region possessing an unstable economy and lacking job security, could also factor into an increase in the number of attacks against U.S. Military Forces (Kalyvas 2008, 405-406). Analysts should attempt to identify all significant factors relevant to any given situation before assessing correlation or causality.

Case Study

The example used in this case study focuses on the Massacre of "Cibicue" (Cibicue Creek) in 1881, where a conflict ensued based on varying perceptions regarding a misinterpretation of a cultural form exhibition, which led to a deadly battle. This historical account takes Bill Yenne's, *Indians Wars: The Campaign for the American West* synopsis for the major actions taken during the arrest of Noche-del-klinne[18] and the subsequent fighting between the Apaches and 6th U.S. Cavalry. The IAD framework's utilization provides contextual understanding of the events that took place in Cibicue between late August and early September 1881, from the Chiricahua Apache perspectives.

It includes narratives[19] compiled in Mosser E. Opler[20] and Eve Ball's life works, as well as accounts from multiple U.S. perspectives. Opler and Ball attempt to fashion accounts on behalf of the Chiricahua Apache that will be "real and convincing for readers of Western European extractions and traditions" (Opler 1996, ix). It focuses on Opler's position that "raid and warfare are subsumed under the maintenance of the household . . . because, at the period described, the Chiricahua considered the raid a legitimate industry and trained faithfully for its proper fulfillment with this in mind" (Opler 1996, x). These

stories provide the basis of information utilized in this case study to exemplify the utility of the modified IAD Framework for Intelligence.

The portion of the case study that this paper applies to the IAD framework, for purposes of this thesis, will be the 6th U.S. Cavalry decision to arrest Nakaidoklini (Noche-del-klinne).

> In late August 1881, even as Nana was disappearing across the horizon, The Indian Bureau agent at San Carlos, J.C. Tiffany, convinced departmental commander Colonel Orlando Willcox that Nakaidoklini was a clear and present danger. Willcox, in turn, issued orders to veteran Indian fighter Colonel Eugene Carr, now the commander of the 6th Cavalry, to arrest Nakaidoklini.
>
> Although he rode out from Fort Apache to do as instructed, Carr questioned the orders. Doing a bit of soothsaying himself, he predicted that interfering with a medicine man could invite more trouble among his followers than it prevented.
>
> Carr reached Nakaidoklini's camp on Cibicue Creek on August 30, with elements of two companies of cavalry and a two-dozen-man detachment of White Mountain Apache scouts under Lieutenant Thomas Cruse. The scouts spoke with Nakaidoklini, explaining that he had to come with the soldiers. If he did not, they told him, he would be killed. Nakaidoklini predicted that he would never be killed and went with the soldiers. (Yenne 2006, KL 4731)

Physical and Material Conditions

Originally spanning from West Texas into Central Arizona and South into Mexico encompassing Chihuahua, the Apache territory was expansive. The terrain featured a plush river valley surrounding the Rio Grande, plains regions harboring plentiful game and mountainous regions that offered a natural defense from Mexican enemies to the South and Southwest. Western expansion of the U.S. territories encroached upon historical Chiricahua grounds traditionally used for hunting, gathering, and basecamp settlements.

> They ranged through southwestern New Mexico, southeastern Arizona, and the northern parts of the Mexican states of Sonora and Chihuahua. The Rio Grande acted as the eastern boundary. Occasional journeys and raids brought them as far

> north as the pueblo outpost of Laguna, Acoma, and Zuñi, but ordinarily they did not stray much farther north than the present site of Quemado, New Mexico. The western limits of their country can be roughly indicated, from north to south, by the present towns of Spur Lake, Luna, reserve, and Glenwood in New Mexico, and by Duncan, Wilcox, Johnson, Benson, Elgin, and Parker Canyon in Arizona. To the south an undetermined area in northern Mexico was also under their control. (Opler 1996, 1)

Subdivided into three bands,[21] the Chiricahua Apaches including the Chihenne, Chokonen, and Bedonkohe were long friends and frequently attended neighboring ceremonial rites of passage and festivities.

> The Chiricahua Apache bands were three in number. The most eastern and northern band, whose territories joined those of the Mescalero Apache at the Rio Grande, controlled almost all the Chiricahua territory west of the Rio Grande in New Mexico . . .called the Red Paint People [*Chihenne*] the Eastern Chiricahua band. To the south and west of the Red Paint People, ranging through the portion of southwestern New Mexico west of the Continental Divide and through southeastern Arizona, a second Chiricahua band, called [*Chokonen*], whose name does not yield to linguistic analysis, was to be found. . . . The famous strongholds of this band . . . were the Dragoon Mountains, the Chiricahua Mountains, and the Dos Cabezas Mountains. The third and southernmost band of the Chiricahua, called in the native tongue [*Bedonkohe*], "Enemy People," stayed almost entirely in what is now Old Mexico. . . . During the last half of the nineteenth century difficulties with the Mexican soldiery drove them north, where they speedily came into conflict with settlers and United States government forces. . . . Mention of this tribal subdivision in the literature is made under the names of Southern Chiricahua and Pinery Apache . . . their leader [*Juh*]. . . . The Sierra Madre and the Hatchet Mountains were familiar landmarks of this band. (Opler 1996, 1-2)

To their North, near central Arizona, resided the White Apaches.

Attributes of Community

The Chiricahua had not always exchanged pleasantries with the White Apaches. There had been few skirmishes along the tribal border areas, but nothing substantial. The Apache religion is practiced and not often spoken. The Apaches believe in one God, Ussen. The Chiricahua believe Ussen created the land for them: "Ussen is free and everywhere, always with us" (Ball, Henn, and Sánchez 1988, 56). The religion also

governs; Apaches shall not fight unless attacked and if attacked to defend themselves (Ball, Henn, and Sánchez 1988, 56). Women and children did not participate in the war dance, which lasted four nights. The reenactment of war was usually followed by social dances where then, women could participate (Opler 1996, 336).

> With us religion is a personal thing; we have neither an organization nor a minister to intercede for us with Ussen, but we pray directly to Him and He answers us. Not always; sometimes we ask for things He does not think best for us. Each morning as the sun first appears on the horizon, the father of the family stands at the door of his tepee, always facing the east, and with eyes and arms uplifted prays to Ussen–not to the sun, but to Ussen. (Ball, Henn, and Sánchez 1988, 58)

Rituals and ceremonies, especially rites of passage to include puberty rites, are of extreme importance within the tribe. Ceremonies differ for occasions, each containing intricate details and rules of conduct. There were ceremonies for weddings, vengeance, and raids. “At the time of strife the shaman whose ceremony pertains to the thwarting of the enemy may gain markedly in prestige” (Opler 1996, 200). The Ghost Dance was thought to invoke the ancestors.[22] Apaches believe that “if they speak in Apache the name of one who is dead, they summon the host of that person to them” (Ball, Henn, and Sánchez 1988, 57). It is believed that Noche-del-Klinne revived this dance from its abandonment.

This particular situation had multiple rules-in-use operating simultaneously. The Bureau of Indian Affairs reserved the right to grant permissions for exiting the reservation. U.S. Military orders sought cessation of the rituals and ultimately set out to arrest the medicine man responsible for civil unrest. Religious belief systems and experiences dealing with the U.S. Soldiers governed the behavioral choices the Apaches

took. In Apache culture, women do not accompany men during the hunt or the raid, whether it is for booty or for war (Opler 1996, 316).

Action Situation

Noche-del-Klinne was a medicine man that was notorious for teaching an ancient dance ritual to those that sought to learn: “The participants formed concentric circles with the Medicine Man in the center (Ball, Henn, and Sánchez 1988, 52). In order to leave the reservation to attend this ritual, Apaches requested a pass from the Bureau of Indian Affairs Agent. The ritual attendance became significantly more popular, eventually leading to large numbers leaving without approval (Ball, Henn, and Sánchez 1988, 52). J.C. Tiffany demanded the medicine man report to him; the demand went unanswered. An interpreter, Sam Bowman, was ordered to spy on the Apaches to better understand what the Apaches were doing in the vicinity of Carriso Creek and subsequently Cibicue Creek (Ball, Henn, and Sánchez 1988, 53). Bowman and Carr were both distressed with the findings and decided to arrest Noche-del-Klinne. Because the order to cease the ritual activity was ignored, Carr set out to arrest the medicine man. An Indian scout forewarned the Apaches attending the ceremonial dance that trouble was coming and Noche-del-Klinne waited patiently for the soldiers’ arrival (Ball, Henn, and Sánchez 1988, 54).

The available information during the time of Noche-del-Klinne’s arrest was limited and biased. The bureau representative, the interpreter, and the soldiers had limited information regarding the Apache rituals and ceremonial rites. Two different themes in narrative accounts surround this event. On the one hand, Noche-del-Klinne was inciting an uprising to attack the whites: “On August 30, 1881, the military at Fort Apache north of San Carlos made a move to arrest Nakaidoklini, a White Mountain Apache who

preached a new religion involving the return of dead warriors to rid native peoples of whites" (Waldman). On the other hand, Noche-del-Klinne was preventing an uprising.

> Writer, using reports of military officers, believed that Noche-del-Klinne was inciting the Indians to an uprising. He was attempting to do exactly the opposite; he was doing his best to prevent one. . . . Apache Medicine Men had used it [the Ghost Dance] to remind us that Ussen had promised to rid the country of our enemies in His own way and at His own time. (Ball, Henn, and Sánchez 1988, 52)

It was noted that before Geronimo's death he commented to Daklugie that "He had never understood why he and Juh could have been so easily influenced by that Medicine Man; but had convinced them that the Apaches should leave revenge to Ussen" (Ball, Henn, and Sánchez 1988, 54).

Table 1. Participants-Positions-Actions Matrix

Participant	Position	Action	Information	Control	Cost & Benefits
Noche-del-Klinne (NDK)	Medicine Man	Ghost Dance; willingly accepting terms of arrest	Believed that he would not die in the arrest	Little choice over arrest / Vast control over tribal retaliation	Believed this would incentive peace
J.C. Tiffany	BIA Agent	Ordered the Medicine Man to report	Limited information	Food rations at the reservation	Believed this would bring order
COL Carr	Commander	Ordered the arrest, tasked the military unit	Limited information	Control over Fort Apache and soldiers garrisoned there	Believed this would bring order
6th CAV	Soldiers	Conducted arrest	Little to no information	Little choice – must follow military order	Status Quo
Juh, Nana, Kaytennae, Chihuahua, Naiche	Tribal Leaders	Followed to ensure no treachery	Vast information on the customs, limited information on arrest	Control over tribal bands and soldiers within	Believed this would incentive peace
Sam Bowman	Interpreter/Spy	Proclaimed an Apache uprising	Limited information on Apache customs	Limited	Protection from military; Feared trouble
SGT Mose	Informant	Forewarned of NDK's arrest	Knew that the Cavalry soldiers were coming to arrest NDK	Limited	Feared reprisals on the Apaches

Source: Created by author referencing Eve Ball, with Nora Henn, and Lynda A. Sánchez, *Indeh, an Apache Odyssey* (Norman, OK: University of Oklahoma Press, 1988).

There are different versions of the aftermath following Noche-del-Klinne's arrest. One version is as follows:

> As the troops made camp, Nakaidoklini's disciples attacked in force. The Apache scouts promptly revolted and joined in, shooting wildly at the soldiers. Having been ordered to shoot Nakaidoklini if anything happened, Sergeant John MacDonald did so, although it took several shots to bring him down. Various accounts of the incident have Nakaidoklini's wife and members of his family also being killed.
>
> The soldiers took cover and the two sides traded shots until dusk, at which time, Carr organized a withdrawal under cover of darkness. He had lost four men killed in action, and another man would later die of his wounds.
>
> News of the death of Nakaidoklini spread quickly, liberally enhanced by exaggeration. This was the catalyst that led to a general uprising. It probably would have happened soon anyway, but the assassination of the shaman was the direct cause. Over the next three days, five civilians and three soldiers were killed by the Apache in remote locations in east-central Arizona near Fort Apache. They even laid siege to Fort Apache itself, during which Private First Class Will Barnes of the Army Signal Corps earned the Medal of Honor for bravery in the defense of the post. (Yenne 2006)

Another version, stemming from Apache narrative, indicates that the tribal leaders and their soldiers followed the arresting party to ensure there was no "treachery." While the troops were establishing camp for the night the Apaches maintained overwatch of the Medicine Man. According to Daklugie, "Although the Indians were doing nothing by watching, an officer called to them to leave. This they refused to do. Suddenly, a shot was fired–then many. My father did not know who fired the first shot, but once the fight started, the Apaches got into it" (Ball, Henn, and Sánchez 1988, 54). Noche-del-Klinne was killed along with his family consisting of wife and son.

Following the aftermath of the fighting at Cibicue, many Chiricahuas fled the reservations into Mexico. They subsequently sought refuge in the mountains and formed

alliances with other tribal bands.[23] (Watt 2012, KL 202-204) This led to waging vengeance raids against the "White Eyes."

Varying narratives provide unique understandings and perspectives on accounts of past events. If, the Apaches were in fact rallying support for an uprising that contained the leadership and soldiers of four Apache bands, several questions remain unanswered. Why would Noche-del-Klinne go willingly if the tribal bands were attempting to wage a war? Why would the tribal leaders not attack upon arrival of the cavalry unit? After receiving the information from the informant, why would the Apaches not set out ambush parties? Why were women present in the follow on party?

The interactions surrounding Noche-del-Klinne's arrest and ultimately his death are vague. This event is easily misinterpreted based on the limited data and cognitive biases within the narratives. The IAD framework provides a conceptual guide that formulates how to understand convoluted situations. It is able to illuminate key factors within the distal and proximate contexts pertinent to understanding the operational environment. This particular application focuses on the interactions between the assemblages of actors and systems. It is most beneficial in determining where gaps of information and intelligence exist thereby driving the collection efforts.

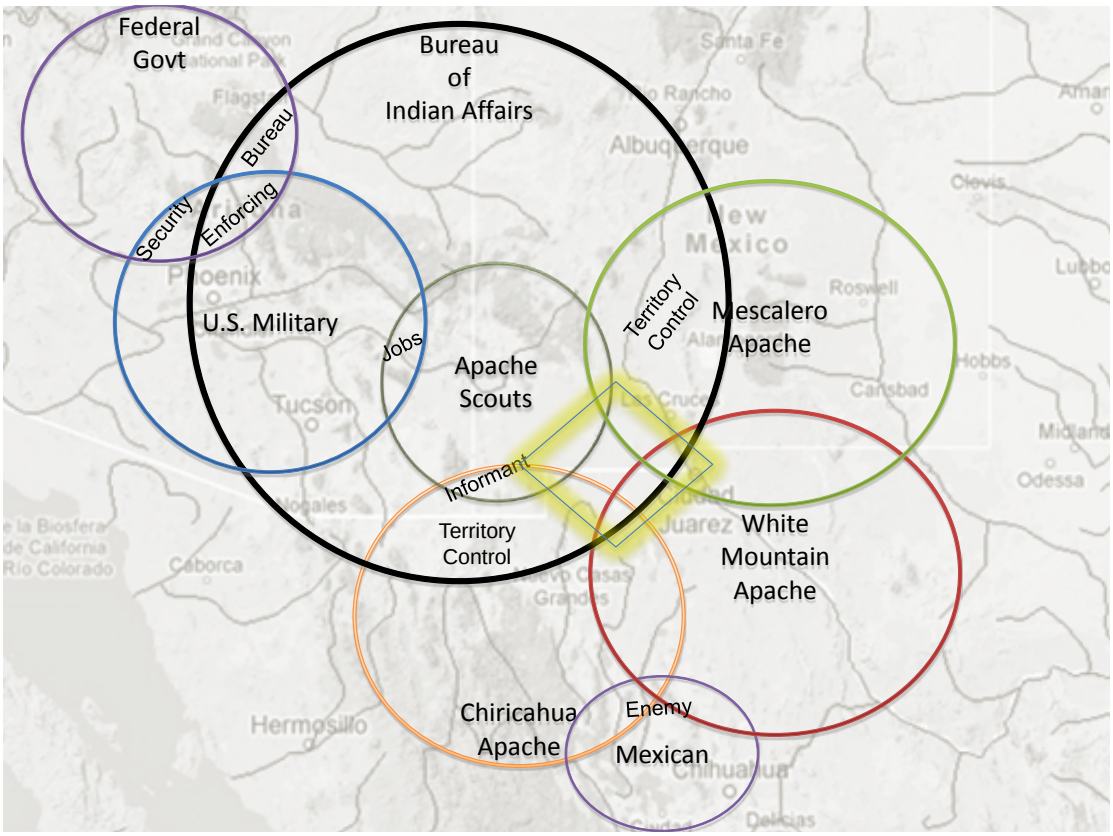

Figure 6. Systems Interactions depicting Noche-del-Klinne arrest at Cibicue 1881.

Source: Created by author using scenario from Eve Ball, with Nora Henn, and Lynda A. Sánchez, *Indeh, an Apache Odyssey* (Norman, OK: University of Oklahoma Press, 1988).

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[1]Richards J., Heuer, Jr., *Psychology of Intelligence Analysis*, Washington, DC: Center for the Study of Intelligence, Central Intelligence Agency, 1999.

[2]The IAD Framework with modifications is adapted from the original and modified versions of the IAD Framework presented by Ostrom (2005, 2010), Gibson et al. (2005) and McGinnis (2011). This allows for incorporating military intelligence methodologies and analytical processes as input components.

[3]The term "distal context" is derived from LTC Celestino Perez's "High –Stakes Political Judgment: An Analytically Eclectic Framework for *Thinking What We are Doing*" Perez notes that "the framework's 'context' establishes the more generative or distal conditions." His modification facilitates incorporation of causality and complexity.

[4]Physical Environment. "Defines the physical circumstances and conditions that influence the execution of operations throughout the domains of air, land, sea, and

space." (FM 2-01.3 2009, 1-9). This framework accounts for analysis of terrain or the physical environment as it pertains to military operations.

[5]FM 2-01.3(1-9) defines the evaluation requirements for analysts utilizing the PMESII model. The political subsystem "describes the distribution of responsibility and power at all levels of governance or cooperation. The military subsystem "explores the military capabilities of all relevant actors in a given operational environment/*battlespace environment*." The economic subsystem "encompasses individual behaviors and aggregate phenomena related to the production, distribution, and consumption of resources." The social subsystem. "describes the cultural, religious, and ethnic makeup within an operational environment/*battlespace environment*." The information subsystem "describes the nature, scope, characteristics, and effects of individuals, organizations, and systems that collect, process, disseminate, or act on information." The infrastructure subsystem "is composed of the basic facilities, services, and installations needed for the functioning of a community or society."

[6]Ben Connable notes structural functionalism is a school of thought that envisions societies as systems that can be broken down into component parts. In many ways, it closely mirrors general systems theory (see Ludwig von Betalanffy, *General Systems Theory: Foundations, Development, Applications,* rev. ed., New York: George Braziller, 1974), which itself is the basis for the loosely defined process of systems analysis. SoSA is not necessarily a strict interpretation of structural functionalism, but it appears to be founded on the same general considerations. Many contemporary scholars reject structural functionalism as an inadequate means of describing human identity and interaction.

[7]ASCOPE is memory aid used to determine the civil considerations during the intelligence preparation of the operational environment.

[8]This is similar to the tribal structures existing in Iraq such as the Dulaim (or Dulaymi) Federation that is subdivided into subtribes. The self-categorization of individuals belonging to these sub-elements categorized belonging and affiliation with the subtribe then the federation.

[9]My understanding of translation comes from working with interpreters on multiple deployments as well as living in a bilingual home throughout my childhood.

[10]Ostrom referencing Crawford and Ostrom, 2005; Ostrom, 1997; Siddiki, Weeible, Basurto, and Calanni, 2011.

[11]Hypodescent is a term used to describe trace blood amounts to a specific race, ethnicity, etc. It refers blood lineage similar to that seen in royalty amongst historical European monarchies.

[12]Hitlin referencing S. Schwartz 1992 and Schwartz and Bilsky 1987).

[13]Further information on action, information and cost benefit is Part II, *Understanding Institutional Diversity* (2005).

[14]Although Rogers Smith presents the ideas of narratives and stories in the political arena, his principle argument has broader applicability.

[15]Somers discusses four dimensions of narrativity: ontological, public, conceptual, and metanarratives. She writes, "Ontological narratives are the stories that social actors use to make sense of–indeed, to act in–their lives. They are used to define who we are; this in turn can be a precondition for knowing what to do. This "doing" will in turn produce new narratives and hence, new actions. This type of narrative is neither a priori nor fixed. Public narratives are those narratives attached to cultural and institutional formations larger than the single individual, to intersubjective networks or institutions. These range from narratives about one's family to work or government. Metanarrativity refers to 'masternarratives' in which we are embedded as contemporary actors in history and as social scientists. One aspect of metanarratives is they are built on concepts and explanatory schemes ('social systems,' 'social entities,' 'social forces') that are in themselves abstractions. Conceptual narratives are the concepts and explanations constructed as social researchers. The challenge of conceptual narrativity is to devise a vocabulary that we can use to reconstruct and plot over time and space the ontological narratives and relationships of historical actors, the public and cultural narratives that inform their lives, and the crucial intersection of these narratives with the other relevant social factors" (617-620). She notes the fourth is most important if theories are adequately to account for social action and collective projects.

[16]Information regarding Deduction, Induction and Abduction was presented in the Local Dynamics of War Scholar's Program at CGSC, Fort Leavenworth, KS.

[17]Cibicue is also spelled Cibicu in some of the referenced material but for the purpose of this document the spelling will be Cibicue.

[18]Literature written on the Cibicue accounts offer variations of spelling Nakaidoklini. He is also known as Nakaydoklunni; Nocadelklinny; Nockay-Delklinne; Noch-ay-del-klinne; Babbyduclone; Bardudeclenny; Bobby-dok-linny.

[19]Over thirty Chiricahua Apache, representing all three bands, have contributed to the field notes contained the literature used in this case study.

[20]Mosser E. Opler is an ethnographer who published his collection of data in 1941. He writes, "It is my hope that a volume which depicts the development of the individual in relation to society, which draws us heavily from source materials, and which emphasizes the functions of institutions in context will be of interest not only to professional anthropologist but also to educators, child psychologists, sociologists, and to all those sincerely concerned with the comprehension of the human scene" (xi).

[21]Eve Ball and Geronimo's literature depict 4 bands or subdivisions within the Apache tribe, to include the Chiricahua or Chokonen (Ball, 43).

[22]The only accounts of the Ghost Dance were found in literature written to account the Apache War Battles. Opler's *An Apache Life-Way: The Economic, Social and Religious Institutions of the Chiricahua Indians* does not discuss this rite or ceremony. Eve Ball's *Indeh, An Apache Odessey* discusses Daklugie's recollection of his father's story regarding the medicine man that attempting to call fighters to peace.

[23]September 1881: Alarmed by US Army activity following the Cibecue mutiny and the attack on Fort Apache, Juh and many Chiricahuas flee from the San Carlos reservation into Mexico. They take refuge in the Sierra Madre Mts, and join forces with Nana, recently returned to Mexico from his raid into New Mexico." Watt, Robert (2012-01-24). Apache Tactics 1830-86 (Elite) (Kindle Locations 202-204). Random House Inc Clients. Kindle Edition.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

> In the campaign against terrorist networks and other extremists, we know that direct military force will continue to have a role. But over the long term, we cannot kill or capture our way to victory.
>
> — Robert M. Gates, 15 July 2008

> Art. 68. Modern wars are not internecine wars, in which the killing of the enemy is the object.
>
> — President Abraham Lincoln, 1863,
> *The Laws of Armed Conflicts*

Conclusions

Intelligence analysts' role in military operations, U.S. policy development, or foreign intervention is to possess skills to fully analyze, comprehend, and convey, with passion, the local dynamics of the operational environment. As the U.S. continues to confront an ever changing world containing unconventional adversarial threats utilizing asymmetric tactics, it is imperative for decision makers to appreciate the minutiae within the complexity of the operational environment. Due to the inherent political nature of warfare, it is necessary to look beyond the lethal aspects and frame problems beyond the first phases of the joint operations construct.

> The individual wars America has fought have constituted the "clearing" operations, defeating the nation's enemies and then destroying them or at least driving them back to whence they came. Wherever it has fought, however, the United States has eventually recognized that such battles by themselves cannot produce lasting results—because when U.S. forces withdraw quickly from the field, defeated enemies recuperate or new ones rise to take their place. So the United States has taken on a variety of "holding" operations as well, protecting the cleared areas by garrisoning them with its own and friendly forces, so that the nation's enemies stay down or at least back. This tends to work well enough on a temporary basis, but it can be dangerous, costly, and politically problematic. So

> the only truly satisfactory long-term solution, policymakers have realized, is the "building" of stable, healthy, indigenous political orders in the areas in question, ones that allow local populations to thrive in harmony with each other and the world at large. (Rose 2010, 278-279)

In order to achieve the U.S.' ultimate objectives with its foreign policy advancements, to include "nation building," the intelligence community must be able to provide the compulsory information and intelligence to decision makers, at key moments within the planning process.

The intelligence doctrinal procedures evaluating the human domain does not provide a framework needed to generate an accurate depiction of the operational environment. An overview of intelligence critiques includes perspectives from the joint, interagency, and intergovernmental forums. These disparagements provide critical insight that this problem persists within the entirety of the intelligence community. The review of literature identifies several intrinsic flaws in intelligence practices and doctrine. The composition of the human domain is more than culture alone and other relevant factors that must be considered to best understand interaction between open systems. The systems analysis approach did not generate the analytical thoroughness essential to understanding interactions between systems in the complex nature of an operational environment. Lastly, the literature review finds doctrine should not delineate between how analysts conduct analysis because of mission type.

Based on this paper's findings, analytical practices focused on understanding the human domain are ambiguous and it is apparent that the intelligence community lacks a framework to standardize intelligence methodologies. This thesis identifies that;

1. The operational environment comprises complex open systems that require in depth understanding of the variables and their interplay.

2. The operational environment requires intelligence personnel who are adaptable to the changing demands of U.S. mission.
3. There are social science concepts that prove successful in enhancing current intelligence practices.

The analysis finds that the current intelligence practices and tools integrate seamlessly in to the IAD framework and generate an all inclusive methodology for evaluating interactions within the landscape of complexity. With the current military intelligence strategy focusing on regionally aligning intelligence assets, the foundation for these analysts resides in the training they receive prior to supporting the force. According to the current Army G-2, Lieutenant General Mary Legere, "The intel professional, at 18 years old, that we present today is going to have to be conversant . . . in a threat environment that is complex and hybrid" (Tan 2012). This being the case, the skills the intelligence community provides to its analysts, and in turn the skills the analysts provide for commanders and decision makers, should match the demand and requirements.

This thesis expresses a need for a paradigm change in intelligence analysis, especially evaluating the human domain of the operational environment. Without a flexible and agile framework, indifferent to mission type, analysts are unable to standardize analysis tasks, consider all relevant information and intelligence variables, or nominate collection efforts in closing intelligence gaps. The IAD framework is a social science concept providing a structure facilitating an accurate depiction of human domain, in a manner that best supports a commander's ability to make informed decisions at all echelons, given the operational environment. Its incorporation into intelligence practices

facilitates multiple objectives. The first goal is it provides the detailed analysis decision makers need to understand the complexity of any situation. It further advances the analytical thought processes and standardizes the way intelligence analysts assess ongoing situations in a given setting. This interdisciplinary approach bridges the rift between scholars and practitioners within the political atmosphere of intervention.

Recommendations

The current Joint and Army intelligence doctrines stipulating intelligence preparation of the operational environment must eliminate the level of detail delineation when conducting analysis of the human domain based on mission type. Planning should be impartial to the type of mission and focus on the overall objectives. Intelligence analysts and military planners ought to develop the most accurate depiction of the operational environment, without marginalizing potentially critical details based on the types of operations commanders may seek to employ. Rather, a more demanding assessment may illuminate the best place and way to intervene, that minimizes risk to force and preserves critical assets as well as time.

Areas outside of intelligence and the military should also include the IAD framework. It provides a means to conduct analysis of the operational environment continuously, while accommodating the complexity and uncertainty in the world and accounting for U.S. intervention within the action situation. More prominently, this framework allows for staff planners and decision makers to assess effectiveness of ongoing operations and determine if there are necessary changes required in planning and execution. The IAD framework's utility is promising to organizations outside of the military as well. This framework incorporates methodologies seamlessly and because of

its scalable design, it integrates unique organizational procedures and analyses within a joint, interagency, intergovernmental, and multi-national environment.

Because intelligence analysis would still require "rigorous application of the IAD framework" (Polski and Ostrom 1999, 18), this paper posits that the intelligence community reevaluates current training programs to incorporate such an agenda. Although the IAD framework seems overwhelming and cumbersome, a recommended starting point for its application is in the entry level programs for civilian, officers, and enlisted soldiers. Including it in Advanced Individual Training, Officer Basic and Advanced Courses at the Military Intelligence Center of Excellence, Fort Huachuca, Arizona, as well as the Defense Intelligence Agency in Washington DC would provide a launch point generating standardization between civilian and military analysts supporting national security efforts. Additionally, exposure to the IAD framework needs incorporation into the Combined Arms Center curriculum supporting the Command and General Staff College and the Senior Service College. Its applicability is relevant in all aspects of problem solving; especially where future leaders and decision makers obtain advanced educational instruction.

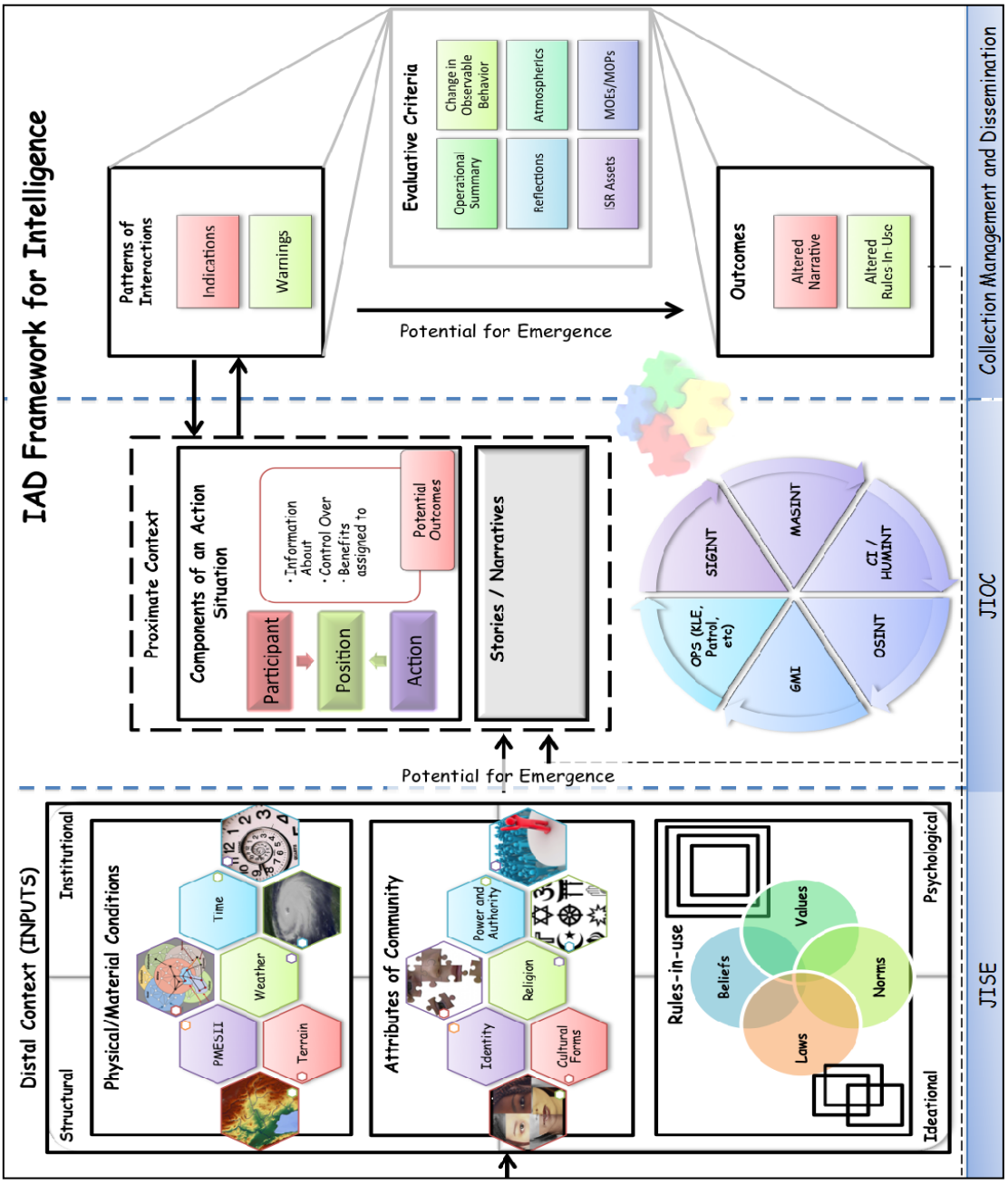
The IAD framework provides a venue to socialize a different way of thought. All military practitioners need to think, about how to think, about complex problems. The IAD framework would structure thought processes and standardize the analytical approach the intelligence community utilizes to evaluate complex problems. This is transparent to those outside of the intelligence community. The inclusion of this framework would not require a "culture" change amongst consumers. Consumers would

benefit from the products that analysts generate because the framework facilitated enhanced analytical power and skills.

Furthermore, the intelligence community should seek to leverage the skill sets, resources, and expertise of scholars working across the spectrum of the sciences encompassing human and environmental interactions. Scholarly studies and social science works contribute immensely to identifying dynamics of situations in which the military operates. Cross collaboration between academia (theory) and the military (praxis) facilitates opportunities to potentiate the U.S.' effectiveness in its interventions and diplomacy worldwide.

APPENDIX A

MODIFIED IAD FRAMEWORK FOR INTELLIGENCE



Source: Adapted from Gibson et al., *The Samaritan's Dilemma: The Political Economy of Development Aid* (New York: Oxford University Press, 2009), 26, Figure 2.2. A framework for institutional analysis. [Originally adapted from Ostrom et al., *Rules, Games and Common-Pool Resources* (University of Michigan Press, 1994), 37, Figure 2-2.]

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